

Algorithm:

1. Start
2. Initialize the graphics mode.
3. Construct a 2D object Use Drawpoly () e.g. (x, y)
4. A) Translation
 - a. Get the translation values t_x, t_y
 - b. Move the 2D object with t_x, t_y
 $(x' = x + t_x, y' = y + t_y)$
 - c. plot (x', y')
5. B) Scaling
 - a. Get the scaling values s_x, s_y
 - b. Resize the object with s_x, s_y
 $(x' = x * s_x, y' = y * s_y)$
 - c. plot (x', y')
6. C) Rotation
 - a. Get the Rotation angle
 - b. Rotate the object by the angle ϕ
 $x' = x \cos \phi - y \sin \phi$
 $y' = x \sin \phi + y \cos \phi$
 - c. Plot (x', y')

```
line (x3, y3, x1, y1);
```

```
getch (1);
```

```
printf (" \n 1. Transaction \n 2. Rotation \n 3. Scaling \n. exit);
```

```
printf ("Enter your choice!");
```

```
scanf ("%d", &c);
```

```
switch (c)
```

```
{
```

```
case 1: printf ("In the transaction factor");
```

```
scanf ("%d %d", &xt, &y+);
```

```
nx1 = x1 + xt;
```

```
ny1 = y1 + y+;
```

```
nx2 = x2 + xt;
```

```
ny2 = y2 + y+;
```

```
nx3 = x3 + xt;
```

```
ny3 = y3 + y+;
```

```
line (nx1, ny1, nx2, ny2);
```

```
line (nx2, ny2, nx3, ny3);
```

```
line (nx3, ny3, nx1, ny1);
```

```
getch (1);
```

```
case 2:
```

```
printf ("In Enter the angle of rotation");
```

```
scanf ("%d", &r);
```

```
t = 3.14 * r / 180;
```

```
nx1 = abs (x1 * cos (t) - y1 * (sin (t));
```

```

ny1 = abs(x1 * sin(t) + y1 * cos(t));
nx2 = abs(x2 * sin(t) + y2 * cos(t));
ny2 = abs(x2 * cos(t) - y2 * sin(t));
nx2 = abs(x2 * sin(t) + y2 * cos(t));
nx3 = abs(x3 * cos(t) - y3 * sin(t));
ny3 = abs(x3 * sin(t) - y3 * cos(t));
line(nx1, ny1, nx2, ny2);
line(nx2, ny2, nx3, ny3);
line(nx3, ny3, nx1, ny1);
getch();

```

case 3:

```

printf("\n Enter scaling factor");
scanf("%d %d", &sx, &sy);

```

```

nx1 = x1 * sx;
ny1 = y1 * sy;
ny2 = x2 * sx;
ny2 = y2 * sy;
nx2 = x3 * sx;
ny3 = y3 * sy;

```

```

line(nx1, ny1, nx2, ny2);
line(nx2, ny2, nx3, ny3);
line(nx3, ny3, nx1, ny1);
getch();

```


case 4;

break ;

default :

printf ("Enter the correct choice");

}

close graph (1 ;

}

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Ans 2. Program:

```
#include <graphics.h>
#include <stdlib.h>
#include <stdio.h>
#include <conio.h>
#include <math.h>

void main ()
{
    int gm;
    int gd = DETECT;
    int x1, x2, x3, y1, y2, y3, nx1, nx2, nx3, ny1, ny2, ny3, c;
    int sx, sy, xt, yt, r;
    float t;
    initgraph (&gd, &gm, "c:\\tc\\bg");
    printf ("Program for basic transactions");
    printf ("Enter the points of triangle");
    setcolor (1);
    scanf ("%d %d %d %d %d %d", &x1, &y1, &x2, &y2, &x3, &y3);
    line (x1, y1, x2, y2);
    line (x2, y2, x3, y3);
}
```

