**PROGRAM NO. 6**

**AIM-** To rotate a given triangle clockwise and anticlockwise about a given point.

#include<iostream.h>

#include<conio.h>

#include<graphics.h>

#include<math.h>

void main()

{

int gd = DETECT, gmode;

initgraph(&gd, &gmode, "C:\\turboc3\\bgi");

double x1, x2, x3, y1, y2, y3, rot;

cout<<"Enter First X - Coordinate : ";

cin>>x1;

cout<<"Enter First Y - Coordinate : ";

cin>>y1;

cout<<"Enter Second X - Coordinate : ";

cin>>x2;

cout<<"Enter Second Y - Coordinate : ";

cin>>y2;

cout<<"Enter Third X - Coordinate : ";

cin>>x3;

cout<<"Enter Third Y - Coordinate : ";

cin>>y3;

line(x1, y1, x2, y2);

line(x2, y2, x3, y3);

line(x3, y3, x1, y1);

cout<<"Enter Rotation Angle in Degrees : ";

cin>>rot;

double fpx;

double fpy;

cout<<"Enter Point of rotation x1 & X2 : ";

cin>>fpx>>fpy;

double rad = rot\*3.14/180;

double X1 = (x1-fpx)\*cos(rad) - (y1-fpy)\*sin(rad) + fpx;

double Y1 = (x1-fpx)\*sin(rad) + (y1-fpx)\*cos(rad) + fpy;

double X2 = (x2-fpx)\*cos(rad) - (y2-fpy)\*sin(rad) + fpx;

double Y2 = (x2-fpx)\*sin(rad) + (y2-fpx)\*cos(rad) + fpy;

double X3 = (x3-fpx)\*cos(rad) - (y3-fpy)\*sin(rad) + fpx;

double Y3 = (x3-fpx)\*sin(rad) + (y3-fpx)\*cos(rad) + fpy;

line(X1, Y1, X2, Y2);

line(X2, Y2, X3, Y3);

line(X3, Y3, X1, Y1);

getch();

closegraph();

}

**OUTPUT:-**

