/\*

Problem Statement: a) Write C++ program to generate snowflake using concept of fractals.

Name: Riya Manoj Wagh

Div: B(SB3)

Roll no: 65

\*/

// BEGINNING OF CODE

#include<iostream>

#include<graphics.h>

#include<cmath>

using namespace std;

void koch(int x1,int y1,int x2,int y2,int it)

{

float angle = (60\*3.14)/180;

int x3 = (2\*x1 + x2)/3;

int y3 = (2\*y1 + y2)/3;

int x4 = (2\*x2 + x1)/3;

int y4 = (2\*y2 + y1)/3;

int x = x3+ (x4-x3)\*cos(angle) + (y4-y3)\*sin(angle);

int y = y3 - (x4-x3)\*sin(angle) + (y4-y3)\*cos(angle);

if(it>0)

{

koch(x1,y1,x3,y3,it-1);

koch(x3,y3,x,y,it-1);

koch(x,y,x4,y4,it-1);

koch(x4,y4,x2,y2,it-1);

}

else

{

line(x1,y1,x3,y3);

line(x3,y3,x,y);

line(x,y,x4,y4);

line(x4,y4,x2,y2);

}

}

int main()

{

int gd = DETECT,gm;

initgraph(&gd,&gm,NULL);

int x1,y1,x2,y2,order;

float angle = (60\*3.14)/180;

cout<<"Enter value of x1: ";

cin>>x1;

cout<<"Enter value of y1: ";

cin>>y1;

cout<<"Enter value of x2: ";

cin>>x2;

cout<<"Enter value of y2: ";

cin>>y2;

cout<<"Enter order of curve: ";

cin>>order;

int x3 = x1 + (x2-x1)\*cos(angle) + (y2-y1)\*sin(angle);

int y3 = y1 - (x2-x1)\*sin(angle) + (y2-y1)\*cos(angle);

koch(x1,y1,x2,y2,order);

koch(x1,y1,x3,y3,order);

koch(x3,y3,x2,y2,order);

delay(10000);

return 0;

}

// END OF CODE