#include <iostream>

#include <math.h>

using namespace std;

// Counting triangle side

double getTriangleSide(int x1, int x2, int y1, int y2)

{

return sqrt(pow((x2 - x1), 2) + pow((y2 - y1), 2));

}

// Counting median

double countMedian(double a, double b, double c)

{

return sqrt((2 \* pow(a, 2)) + (2 \* pow(b, 2)) - (2 \* pow(c, 2))) / 2;

}

// Counting in-radius

double countInRadius(double a, double b, double c)

{

double p = (a + b + c) / 2;

return sqrt(((p - a) \* (p - b) \* (p - c)) / p);

}

int main()

{

try

{

while (true)

{

// 'i' parameter for counting triangle points

int i = 0;

cout << "Please enter 'i' parameter : "; cin >> i;

// Triangle parameters

int ax = 0, ay = 0;

int bx = i, by = i + 1;

int cx = -i, cy = i + 1;

// Count and view median

double median = countMedian(getTriangleSide(bx, cx, by, cy), getTriangleSide(ax, cx, ay, cy), getTriangleSide(ax, bx, ay, by));

cout << "Your counted median : " << median << "cm" << endl;

// Count and view in-radius

double inRadius = countInRadius(getTriangleSide(bx, cx, by, cy), getTriangleSide(ax, cx, ay, cy), getTriangleSide(ax, bx, ay, by));

cout << "Your counted in radius : " << inRadius << "cm" << endl;

}

}

catch (const exception& ex)

{

cout << ex.what() << endl;

}

}