#include <iostream>

#include <cmath>

#include <iomanip>

#include <fstream>

#define SQR(x) ((x) \* (x))

using namespace std;

const int Nx = 100;

const int Ny = 200;

const double pi = 3.141592653589793;

const double hx = 1.0/Nx;

const double hy = 1.0/Ny;

int main()

{

double g[Nx+1][Ny+1];

double f[Nx+1];

int i, j;

/// g(x,y)=sqrt(1-(x-0.5)^2-(y-0.5)^2)

for(i = 0; i <= Nx; i++)

{

f[i]= sin(2.0\*pi\*i\*hx);

for(j = 0; j <= Ny; j++)

{

g[i][j] = sqrt (1.0 - SQR(i\*hx-0.5) - SQR (j\*hy-0.5)) ;

}

}

ofstream gout("g(x,y).txt");

for(i = 0; i <= Nx; i++)

{

for (j = 0; j <= Ny; j++)

{

gout << i\*hx << "\t" << j\*hy << "\t" << g[i][j]<< endl;

}

}

gout.close();

ofstream fout("f(x).txt");

for(i = 0; i <= Nx; i++)

{

fout << i\*hx << "\t" << f[i]<< endl;

}

fout.close();

return 0;

}