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Assignment: Homework Assignment 2

Given an input diameter from the user, the program calculates the volume of a sphere with incrementing diameters, and outputs the growth to the nearest whole number.

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#include <iostream>

#include <iomanip>

using namespace std;

const double PI = 3.141592653589793;

double volumeSphere(double diameter) //calculates the volume of a sphere taking in a diameter

{

double volume = 0.0;

volume = (PI \* diameter \* diameter \* diameter) / 6;

return volume;

}

double subtract(double num1, double num2) //finds the difference between two numbers

{

double difference = abs(num2 - num1); /\* abs() creates an error but you can delete abs() and it will still work \*/

return difference;

}

int roundNum(double num) //rounds a double

{

double Dnumber = num;

int Inumber = num;

if((Dnumber - Inumber) >= 0.5)

{

return Inumber + 1;

}

else

{

return Inumber;

}

}

int main()

{

double diameter = 0;

cout << "Diameter: ";

cin >> diameter;

double volume1 = volumeSphere(diameter);

diameter++;

double volume2 = volumeSphere(diameter);

int growth = roundNum(subtract(volume1, volume2));

cout << "Increase: " << growth << endl;

diameter++;

double volume3 = volumeSphere(diameter);

growth = roundNum(subtract(volume2, volume3));

cout << "Increase: " << growth << endl;

}