#include <iostream.h>
#include <iomanip.h>
#include <math.h>

//******************************************************************
//                  ConePaint program (Version 2)
//
//      This program computes the cost of painting traffic cones in
// each of three different colors given the height and diameter
// of a cone in inches and the cost per square foot of each of
// the paints. In addition, the output is formatted to accomodate
// dollar quantities.
//
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//******************************************************************

void main () {
    const float redPrice = 0.10,        // Price per square foot
               // of red paint
    bluePrice = 0.15,       // Price per square foot
               // of blue paint
    greenPrice = 0.18,      // Price per square foot
               // of green paint
    inchesPerFoot = 12.0,   // Inches in 1 foot
    pi = 3.14159265;        // Ratio of circumference
               // to diameter (Remove this declaration if your math.h
               // already declares PI)

    float heightInInches,               // Height in inches
         diameterInInches,
         heightInFeet,               // Height of the cone in feet
         diameterInFeet,               // Diameter of the cone in feet
         radius,                       // Radius of the cone in feet
         surfaceArea,                  // Surface area in square feet
         redCost,                      // Cost to paint a cone red
         blueCost,                     // Cost to paint a cone blue
         greenCost;                    // Cost to paint a cone green

    // Input Data
    cout << "Input the height of the cone in inches:  ";
    cin >> heightInInches;
    cout << "Input the diameter of the base of the cone in inches:  ";
    cin >> diameterInInches;

    // Convert to Feet
    heightInFeet = heightInInches / inchesPerFoot;
    diameterInFeet = diameterInInches / inchesPerFoot;
    radius = diameterInFeet / 2.0;

    // Compute surface area of the cone in square feet
    surfaceArea = pi * radius * 
                  sqrt(radius * radius + heightInFeet * heightInFeet);

    // Compute cost for each color
    redCost = surfaceArea * redPrice;
    blueCost = surfaceArea * bluePrice;
    greenCost = surfaceArea * greenPrice;

    // Set up floating point format
    cout.setf(ios::fixed, ios::floatfield); //set up floating point
    cout.setf(ios::showpoint);              //format
    cout.setprecision(2);

    // Print results
    cout << "The surface area is:  
         " << setw(7) << surfaceArea << " square feet."
         << endl;
    cout << "The painting cost for" << endl;
    cout << " Red is:  $" << setw(5) << redCost << " per square foot"
         << endl;
    cout << " Blue is: $" << setw(5) << blueCost << " per square foot"
<< endl;
cout << " Green is: $" << setw(5) << greenCost << " per square foot"
<< endl;
}