**Problem 4**

When plotting land, you find that you have limited surface area to set up a square base cylinder with a volume of your choosing. But you can make up for the lack of surface area you realize you can build the cylinder vertically. This program will help you by providing the diminutions of the cylinder when you input the surface area and volume.

**Step 1:** Follow the instructions for creating a new Java project in Using DrJava.

**Step 2:** To help you memorize a basic Java program structure at this stage of your learning, type in the standard "public class..." and use the specified name for the class in green above. Add the braces, then public static void main(String[] args);. Make sure you have the proper indentation in place (Allman or K&R). Then, copy and paste the comments from your standard starter code into your program.

**Step 3:** Run your program (Compile, then Run). Debug as needed. It won't do anything yet, but you'll be sure it's at an error-free baseline.

**Step 4:** Go back to **Using DrJava** and copy and paste the sections for the project's identification information and the other comments into your emerging program. The developer is you; the description should be related to the lab problem.

**Step 5:** Decide on your variables and declare them in the proper part of the DECLARATIONS section. Pay close attention to the data types you pick; be on the lookout for limitations (see Notes 2).

**Step 6:** Next, work on your end-user input. Remember, it's a pitch-catch, prompt-get approach: you ask the user the question, the user provides the value. You'll need a pair of statements for each input-capture variable.

Construct the input dialog as follows (the numbers are end-user input samples):

Volume: 50.0

Surface Area: 45.0

Test your program to make sure your input code works.

**Step 7**: Now using the inputs construct a formula that will calculate he height and length of the square base cylinder. You will need to use Java.lang.math.\* to use the sqrt() function. This will come in handy when you are trying to solve for the length of the sides.

**Step 8:** Construct your output so that it looks exactly like this (your values may vary depending on your test data). You will do this by constructing an output stream that includes one or more string literals (verbiage inside quotation marks) and numeric variables. Your code will need to include formatting to get you to the appropriate number of decimal places.

Volume: 50.0

Surface Area: 45.0

Lenght: 6.708203932499369

Height: 7.453559924999299

/\*

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Description:Cost of pizza per square inch

Filename:Lab2\_problem4

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Classes: main

\*/

/\* This program will calculate the dimensions of

a square base cylinder, by having the surface area and volume as input\*/

import java.lang.Math.\*;

import java.util.Scanner;

public class Lab2\_Problem4

{

public static void main(String[] args)

{

// DECLARATIONS

// Input-capture variables:

double dVolume;

double dSurfaceArea;

// Expression-result variables:

double dLength;

double dHeight;

Scanner cin = new Scanner(System.in);

// Counter, accumulator, or flag variables:

// Other variables:

// Instantiations:

// INITIALIZE VARIABLES

// INPUT

System.out.print("Enter the volume needed: ");

dVolume=cin.nextDouble();

System.out.print("Enter the surface area: ");

dSurfaceArea=cin.nextDouble();

// PROCESSING AND CALCULATIONS

dLength=Math.sqrt(dSurfaceArea);

dHeight=dVolume/dLength;

// OUTPUT

System.out.println("Volume: "+dVolume);

System.out.println("Surface Area: "+dSurfaceArea);

System.out.println("Lenght: "+dLength);

System.out.println("Height: "+dHeight);

}

}