CSCE 145: Homework 2

Geometry and Graphics

Create a Java program that asks the user to input the diameter of a circle. After receiving the value for the diameter, your program does each of the following:

1. Prints the diameter of the circle (just echoing what the user entered).
2. Prints the area of the circle.
3. Prints the radius of the circle.
4. Prints the circumference of the circle.
5. Prints the area of the smallest square containing the circle.
6. Prints the area of the largest square contained in the circle.
7. Draws in a window an **outline** (not filled) graphic image of the two squares and the circle.
8. Draws in another window a **filled** graphic image of the two squares and the circle, like the one below.

The program must use a pop-up window (JOptionPane) to get the diameter value from the user, and must show all of its results in a message window (also JOptionPane).
Things to remember:

- The comment area of your program should contain its purpose, your name on the "@author" line, and the date on the "@version" line.
- Real numbers should be represented as double.
- Java has a built-in constant called `Math.PI` and a built-in function called `Math.sqrt()`. For example:

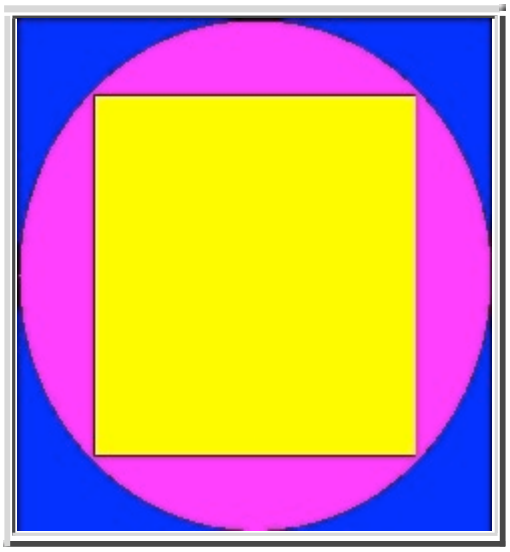
```
double x = 5.5;
double y;
y = Math.sqrt(x);
```

  which assigns to **y** the square root of **x**.
- In order to use Java's graphics for the windows, you must begin your program with

```
import javax.swing.JOptionPane;
```

  Because you are using a pop-up window for input, you will not need to use the `Scanner` class, so you will NOT need to import `java.util`.

The following picture might help you visualize the problem: the smallest square that contains the circle is blue, and the largest square contained in the circle is yellow.



Upload your program to the CSE Dropbox Center, located at https://dropbox.cse.sc.edu.