**Lab17 – Pendulum**

Open BlueJ, and create a new BlueJ project titled **Lab17-Pendulum** in your CS\LABS folder.

Create a new class and **type** in our code skeleton:

//Name:

import java.util.\*;

public class PracticeProblems

{

public static void main(String[] args)

{

Scanner console = new Scanner(System.in);

}

}

Remember, methods are named blocks of code (miniature programs) that ***return*** a value. The information they need to run are supplied inside the parentheses, and are referred to as the method’s ***parameters***.

**Before each numbered problem, insert a COMMENT with the problem number.**

1. Read two double variables from the keyboard, a and b, and print out the maximum value (using a Math class method).
2. Read one double variable from the keyboard, toCube*,* and print out the value of the number cubed.
3. Read two double variables from the keyboard, baseand exponent*,* and print the value of base to the power of exponent*.*
4. Read a double variable from the keyboard, num, and print the value of numrounded to the nearest whole number.
5. Read a double variable from the keyboard, num2*,* and print the value of num2 square rooted.
6. Read in two double values, sideAand sideB, representing the sides of a triangle, and print the value of the corresponding hypotenuse.
7. (Riddle) 
8. Read in two double values, cylinderRadius and cylinderHeight, and print the surface area of the corresponding cylinder (using Math class methods for exponentiation and pi).
9. Read in a double value, sphereDiameter, and print the volume of the corresponding sphere (using Math class methods for exponentiation and pi).

**Pendulum calculation app**

Create a new class and **type** in our code skeleton:

//Name:

import java.util.\*;

public class Pendulum

{

public static void main(String[] args)

{

Scanner console = new Scanner(System.in);

}

}

For a simple pendulum, the length of time for one swing (also known as the pendulum’s period) is determined by the pendulum's length and the force of gravity. If we assume that gravity is constant anywhere on the surface of the earth, then the period of a pendulum is determined by its length.  Write a program that will perform this calculation.

Place it in a loop that will run until the user puts in a length of zero.

Your answers should have **round to 1 decimal place**. (Example: 4.7070431 would become 4.7) This will require you to be a little creative with the Math.round() method.

Sample program run (**user input shown in red**):

Enter pendulum length in meters (or 0 to quit) >>> **5.5**

For a length of 5.5m, the pendulum's period is 4.7 seconds.

Enter pendulum length in meters (or 0 to quit) >>> **8.7**

For a length of 8.7m, the pendulum's period is 5.9 seconds.

Enter pendulum length in meters (or 0 to quit) >>> **12**

For a length of 12.0m, the pendulum's period is 7.0 seconds.

Enter pendulum length in meters (or 0 to quit) >>> **0**

Goodbye.