

Computer Science I Lab

CMSC 120

-Math and Randoms

Topics

- Math class and Random Numbers
- Type Casting

Goals

- Utilize Java's built-in Math class to solve problems
- Generate pseudo-random numbers using the Math class
- Convert data to different data types
- Practice programming, debugging, and testing

Problems
and
Programs

Design, develop, compile, debug, execute, and test Java programs to do the following:

Required

1. Using a variable of type **double** and named appropriately, store the radius of a circle.
2. Calculate (using **Math.PI**) and display the area of the circle:

The area of a circle with a radius of radius is result.
3. Generate a "random" number using **Math.random()** between 10 and 20 and store it in a **int** variable. Repeat two (2) more times with different variables, then display all three (3) random numbers.
4. Store the square root of 14 into an **int** variable by explicitly type casting the returned value of **Math.sqrt()**.
5. Display the results of the following (with appropriate and descriptive messages):
 - a. The floor of 3.2 and 8.9
 - b. The ceiling of 3.2 and 8.9
 - c. 18 to the 4th power

Optional

6. Generate four (4) random **int** variables between 25 and 75. Display them in a format similar to this:

Random numbers: 26, 42, 29, 67
7. Find the Java documentation (on sun.com using Google or your favorite search engine) for the Math class. Display the **Math.min()** of the first two random numbers and the **Math.max()** of the second two random numbers with an appropriate message for each.
8. Using a **boolean** variable, duplicate Math.max() by comparing the first and second random numbers from #6. Display the boolean variable