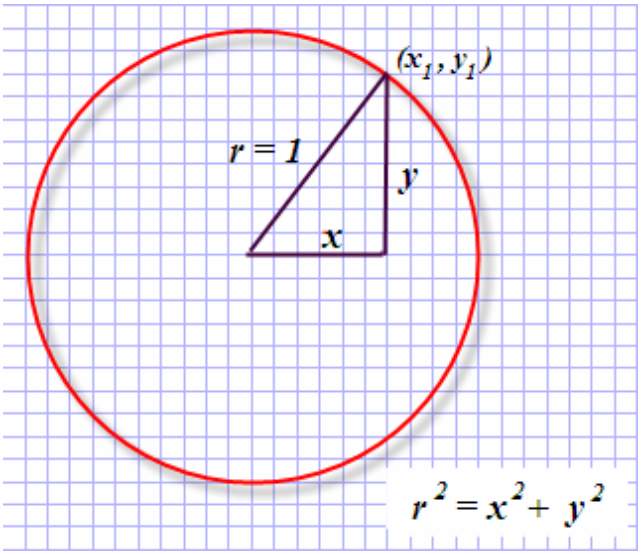
7.01 Assignment Instructions

Instructions: Write a program to calculate the (x, y) coordinates of points on a circle of radius 1.0.

1. Create a new project called 7.01 Math Class Methods.
2. Create a class called PointsOnACircleV1 in the newly created folder.
3. The radius of the circle should be 1.0.
4. Use the appropriate Math class methods in your arithmetic expression(s).
5. The value of the x coordinate should change by 0.1 during initial testing. After the program is working verify that the increment can also be 0.01, or 0.001 with only minor changes to the code.
6. Display the information in a neatly formatted table. (See expected output.) Use a Formatting Grid to save time developing the layout for your output.

Background: Recall from your algebra class that the Pythagorean Theorem can be used to determine the x or y coordinate if you know the radius of the circle and the value of either x or y.



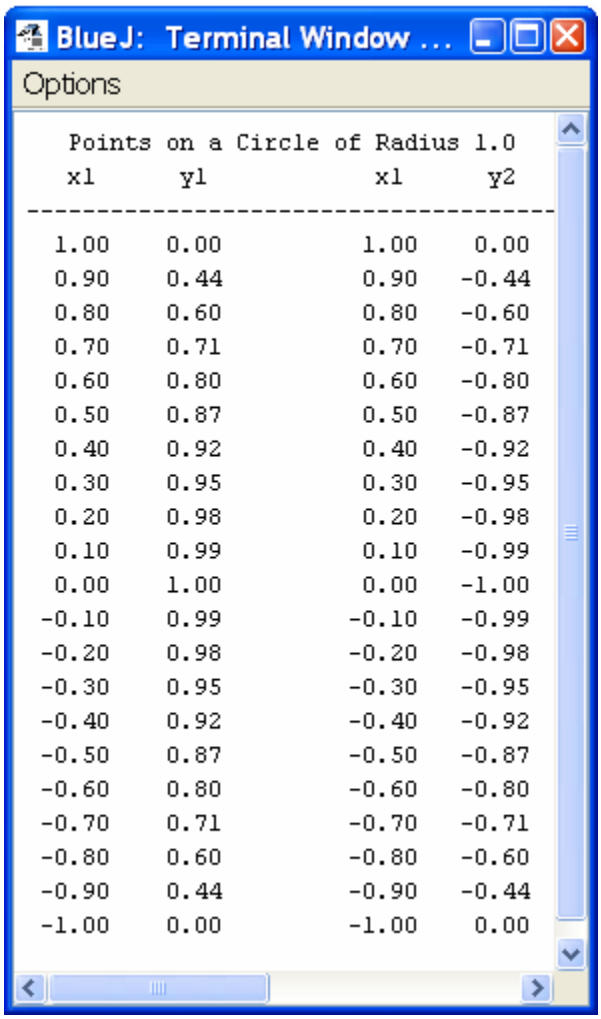
Assume that you are dealing with a circle whose radius is 1.

If you iterate through successive values of x, then you can calculate the corresponding value of y.

Be sure to use methods of the **`Math`** class to set up the arithmetic expression.

Try a few examples with a calculator before attempting to write the program. For example if x = .1 and r = 1, what is y? If x = .2 and r = 1, what is y? If x = .3 and r = 1, what is y?

Expected Output: When your program runs correctly, the output should resemble the following screen shot. Make sure that the output remains correct if the radius or the increment between values of x are changed.



Assessment: Your assignment will be graded according to the following rubric.

Grading Rubric	**Pts**
Comments include name, date, and purpose of program	1
All calculations correct.	1
Loop(s) written correctly.	1
`Math` class methods used in arithmetic expressions	2
Program works with other radii and increments.	2
Output formatted with **`printf()`**.	1
No compiler or runtime errors	1
Thoughtful PMR included	1

Submission: Submit your PointsOnACircle.java file as Assignment 07.01 for a grade.