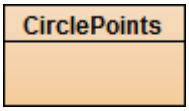
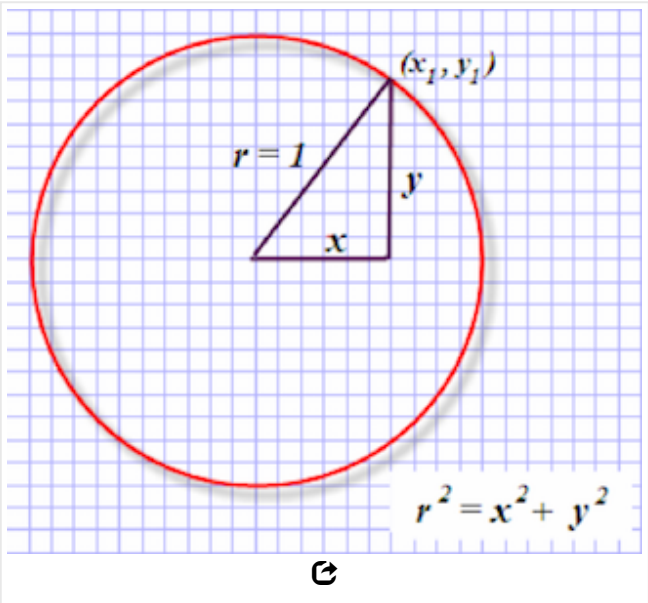
07.01 Assignment Instructions

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



1. Create a new project called 07.01 Math Class Methods.
2. Create a class called CirclePoints in the newly-created folder.
3. The radius of the circle should be adjustable via user input or an assignment statement that your instructor can modify.
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. The incremental value should be adjustable via user input or an assignment statement that your instructor can modify.
6. Display the information in a neatly formatted table. (See sample output below.) Determine how many decimal places will be shown.
7. Note: Do not use arrays for this project.

Background: Recall from geometry 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.



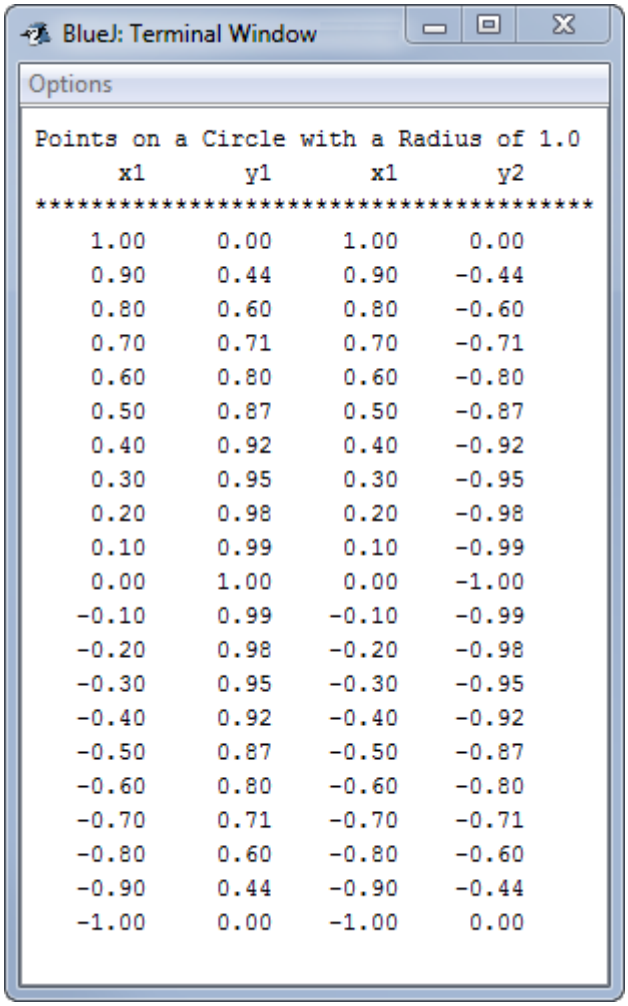
Assume that you are dealing with a circle whose radius is 1.

For a given value of x, the value of y can be calculated. For example, if x = 0.1 and r = 1, what is y? Plug the values into the Pythagorean Theorem to solve for y.

You can iterate through successive values of x and calculate the corresponding values of y.

Try a few examples with a calculator before attempting to write the program. For example if x = r and r = 1, what is y? If x = r – 0.1 and r = 1, what is y? If x = r – 0.2 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 various values are used for the radius and the increment value of x.



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