

Assignment 1

Due date: October 5th, 2020

There are four regions presented on the Figure 1.

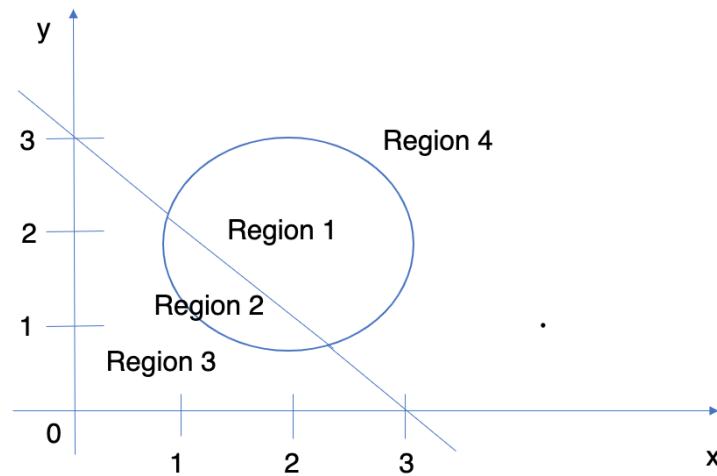


Figure 1.

The regions are represented with following equations:

$$\text{Region 1 : } (x - 2)^2 + (y - 2)^2 \leq 1 \text{ and } x + y > 3$$

$$\text{Region 2 : } (x - 2)^2 + (y - 2)^2 \leq 1 \text{ and } x + y \leq 3$$

$$\text{Region 3 : } (x - 2)^2 + (y - 2)^2 > 1 \text{ and } x + y \leq 3$$

$$\text{Region 4 : } (x - 2)^2 + (y - 2)^2 > 1 \text{ and } x + y > 3$$

Write a program which will accept N consequent points inserted by user from keyboard and calculate how many points belong to each region.

1.) **Analyze the problem: (3 points)** Write an algorithm for the program and present it on the flowchart diagram.

2.) **Implementation: (5 points)** Write a program in C# in Visual Studio implementing algorithm from 1. Use **Math.Pow()** to calculate a number raise to the power of some other number. (<https://docs.microsoft.com/en-us/dotnet/api/system.math.pow?view=netcore-3.1>)

3.) **Testing and post analyses: (2 points)** Chose at least ten (10) points which will efficiently test the program from 2. Present the tests in the following table:

Point	x	y	Result	The purpose of the test
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				