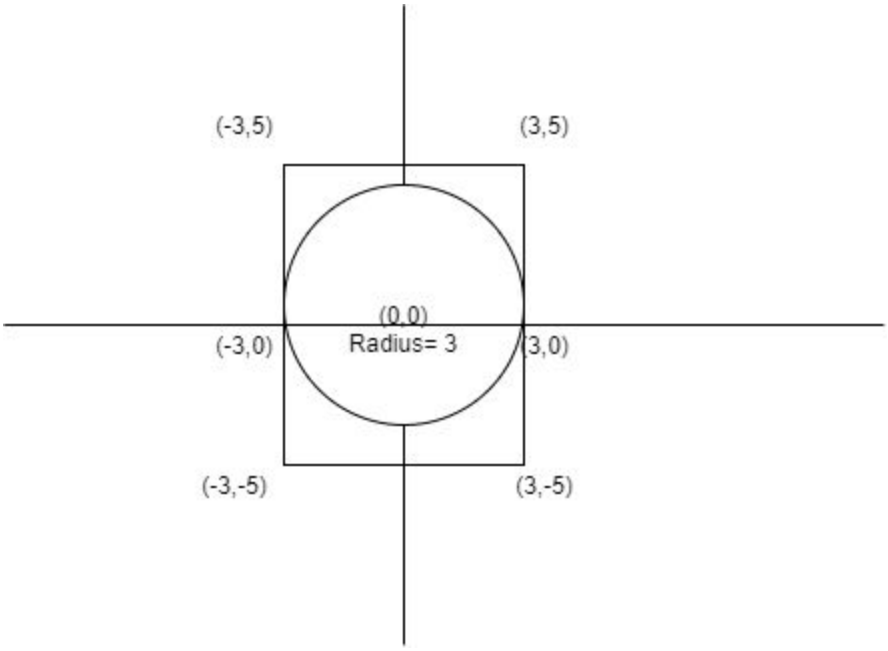
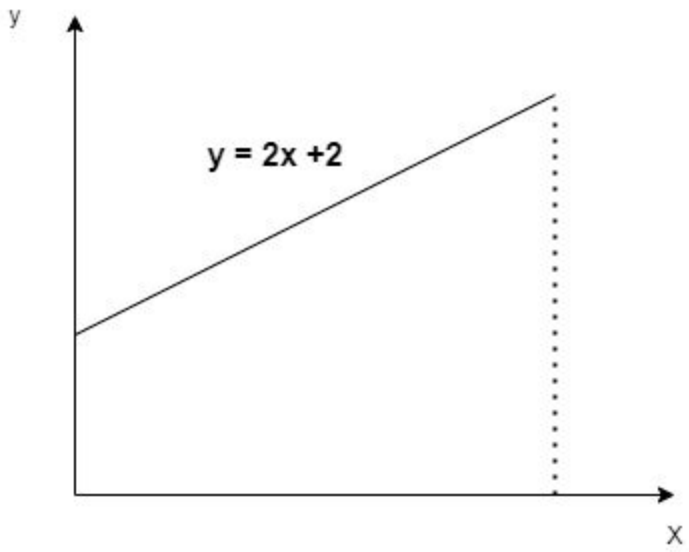
Simulation Lab- 3 Assignment (Odd Student ID)

1. See the figure below:



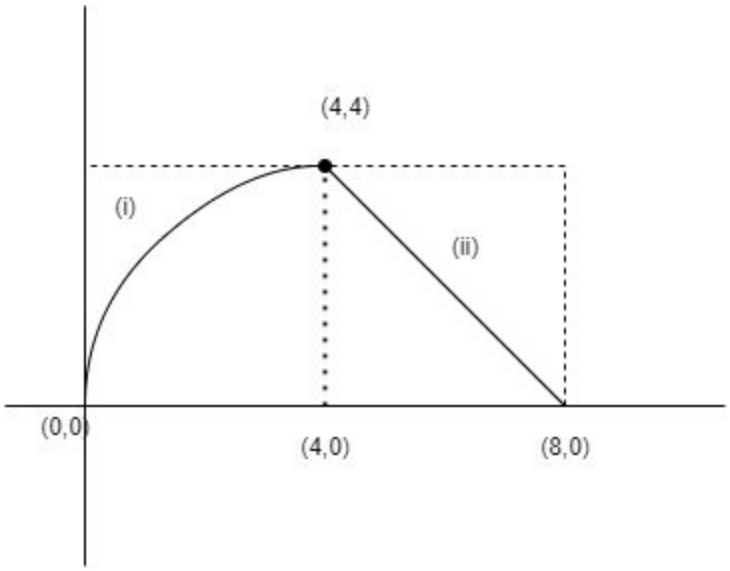
Using Monte Carlo simulation, find the value of PI and area of the circle using the given circle and square. You have to simulate the value for n=100,1000,5000 and 10000 trials. Show the scatter plot, value of PI, value of the area for each value of n. (Just as shown in the class) .
At the end of the simulation, draw two-bar diagrams.
First Bar Plot: x-axis: number of trials, y-axis: PI -value (Shown in the class)
Second Bar Plot: x-axis: number of trials, y-axis: Area of the circle
Output Files:
https://drive.google.com/drive/folders/16y4BnVnyvGzWqfYs9wqilJRhDSD0mb9x?usp=sharing (Second Bar plot has not been shown. Do it yourself)

2. Find the area under the given line below using the monte Carlo simulation.



Simulate this area for n=100,1000,5000,10000 trials. For each value of n, print the area of the triangle and draw scatter plots for each case/

3. Find the area under the curve below using the monte Carlo simulation. Use the drawn rectangle.



Equation of curve - (i) is : $y^2 = 4x$
Equation of (ii) is: $y = 8 - x$
Simulate this area for n=100,1000,5000,10000 trials. For each value of n, print the area and draw scatter plots for each case.