Programming and Numerical Analysis (A)

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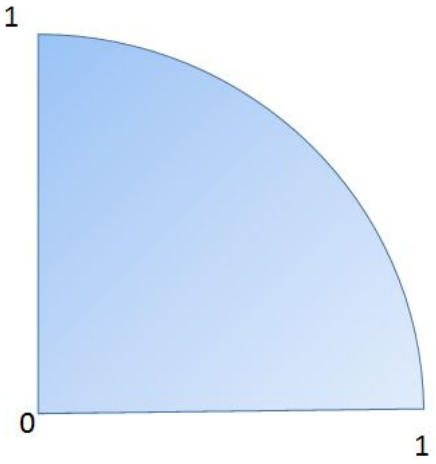
Problem 13
Integrate the next function

$$f(x) = \sqrt{1 - x^2}$$

from 0 to 1 by use of Trapezoidal rule.



Problem 14
Integrate the next function

$$f(x) = \sqrt{1 - x^2}$$

from 0 to 1 by use of Monte Carlo method.

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The accurate answer is pi/4 which is 0.785398

Integrate using Trapezoidal Rule
integral using n=10 f=0.776130
integral using n=100 f=0.785104
integral using n=1000 f=0.785389
integral using n=1000000 f=0.785398
accuracy of n=1000000 is 100.000000%

Integrate using Monte Carlo Method
integral using n=10 f=0.822177
integral using n=100 f=0.775082
integral using n=1000 f=0.778038
integral using n=1000000 f=0.785892
accuracy of n=1000000 is 99.999371%

Press ENTER or type command to continue
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