MTH 264
Computer Project 1

Use numerical integration to approximation of the definite integral using the listed below methods.

1. Methods:
   (a) Left Rectangular Rule also known as Lower sum.
   (b) Right Rectangular Rule also know as upper sum.
   (c) Midpoint Rule
   (d) Trapezoid Rule
   (e) Simpson Rule (Optional 1% Extra credit, NO Help from anyone)
2. Evaluate
   (a) $\int_0^1 \frac{4}{x^2+1} dx$
   (b) $\int_0^3 \sin(x^2) dx$
   (c) $\int_0^1 2e^{-x^2} dx$
3. Answer the following questions:
   (a) Plot each of the function given (Please any online site to graph it)
   (b) Evaluate the integral using number of rectangle/ trapezoid $N = 2, 10, 100, 1000, 10000$.
   (c) Use command **format long** to display 12 decimals places.
   (d) Keep all result in a table (Column is the integration methods and Row is number of rectangles N)
   (e) Explain your discovery and show any trend of solution with respect to N. How many correct digits do you think you get it right?

RUBRIC:
+ Hard copy of the report is due on Wed Sep 26, 2018 at the beginning of class.
+Answers all questions and label it.
+ Must type and print all work (explanations, plots and tables) follow by all code attached at the back of the report.
+ You may work with one partner
+ You turn in as many draft as possible to receive 100%.