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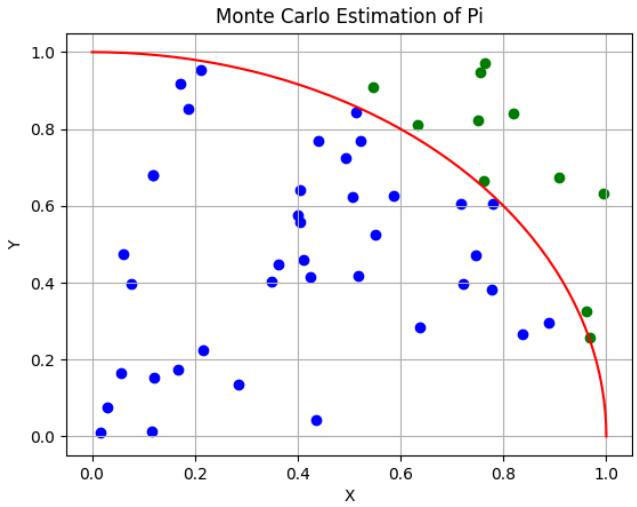
AERO 470

Homework 1 - Stochastic Methods

Below is an example of what *StochasticMethods_Fabrick.py* will output to the terminal and the associated figures as the solution to the homework.

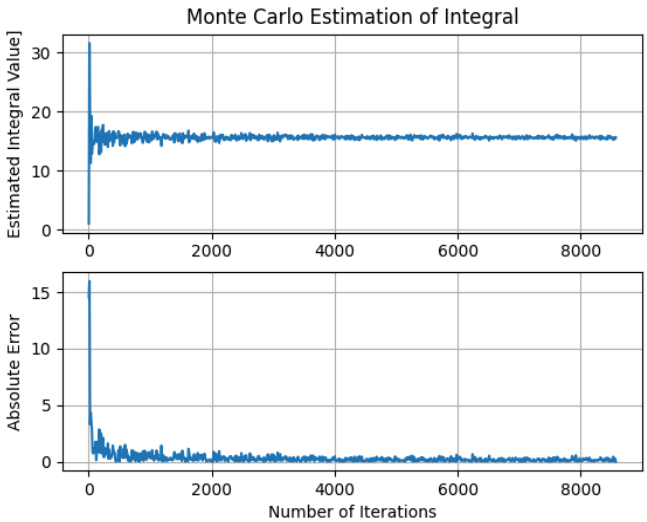
Problem 1

Monte Carlo method estimated Pi to be 3.12 in 50 iterations at 0.6873155106573032 % away from numpy's Pi.



Problem 2

Calculated 15.664335749345046 with 8581 monte carlo iterations at an absolute error of 0.0003141006549540748



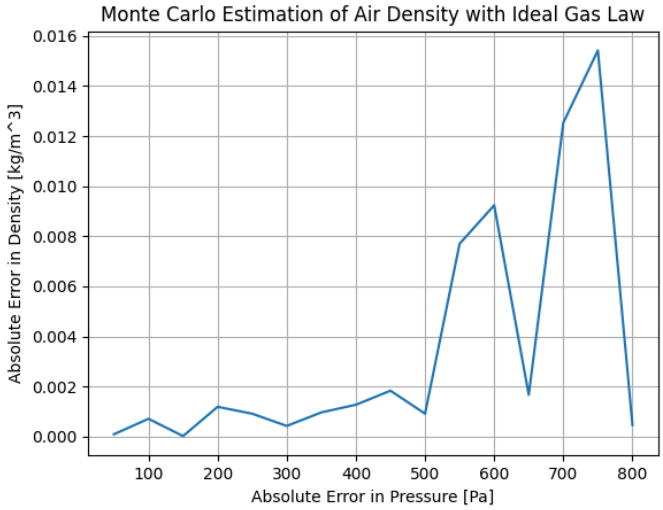
Problem 3

For pressure reading with a standard deviation of 52:

Zero Error --> air density = 1.2250649222511159 and absolute error = 0

Monte Carlo Error with 1 iterations --> air density = 1.2250325338695198 and absolute error = 3.238838159602686e-05

Error at 1 Standard Deviation --> air density = 1.224850872415444 and absolute error = 0.00021404983567174796



Problem 4

95% Confidence Interval of [71530.39021115491, 73603.34804453584] with a range of 2072.957833380933 dollars