PHY4410 HW 3 Fall 2019
Due Monday Sept 23 1 by 4:30pm

For these problem, feel free to modify the existing .py files in the "code" directory.

1. Simulate the advection equation *going to the left* instead of to the right. Upload your code to hedges as hw3_p1.py
2. Following the "Finding Gravity" online notes (/Jupyter notebook), find the (local) minimum of the equation

   $$f(x) = x\text{^}5 - 2x\text{^}4 - 3x\text{^}3 + x - 1$$

   using gradient descent, starting from x=1, and a learning rate of alpha=0.01. Upload your complete code as hw3_p2.py to hedges in your phy4410 directory.
3. Perform the exercise of fitting a sine function, listed toward the end of the "Finding Gravity" online notes (/Jupyter notebook). Save a picture of your results and upload it as hw3_p3.jpg (or .png)