Problem I.7

Piecewise Plot

Due Date: 2/15/2019
Folder: `IntroToProgramming`
File Name: `PWPlot_LastName.py`

Problem Background

This Problem will introduce you to plotting in Python. Visualizing your data is often very helpful, as humans can obtain and process information easier in visual form than in numerical form in many circumstances.

Programming Reminders

- Syntax for a function: `def func_name(param1,param2):`

- Linearly spaced numpy array: `np.linspace(start value, end value, number inbetween)`

- Use keywords `and`, `or` in a conditional

- Conditional keywords: `if`, `elif`, `else`

Program Criteria

Write a program that does the following:

- Create an input variable `N` for the number of points in your plot.

- Create a `def` function that represents the following function

$$f(x) = \begin{cases} -3(x+2)^2 + 1 & \text{if } x < -2 \\ 1 & \text{if } -2 \le x < -1 \\ (x-1)^3 + 3 & \text{if } -1 \le x \le 1 \\ \sin(\pi x) + 3 & \text{if } 1 < x < 2 \\ 3\sqrt{x-2} + 4 & \text{if } x \ge 2 \end{cases} .$$

- Generate a plot of this function over the interval $[-3, 3]$.

Deliverables

Place the following in a folder named `IntroToProgramming` in your repository:

- A Python file `PWPlot_LastName.py` that satisfies the program criteria.