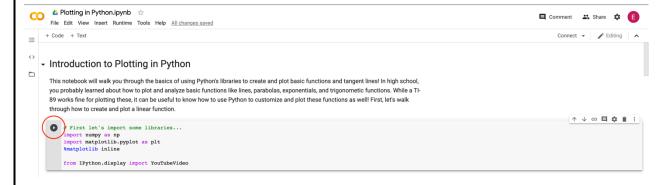
Jupyter Notebook Activity Sheet

Directions

Open the file **WhatisAWave_NOTEBOOK.ipynb** in <u>Google Colaboratory</u> by selecting "File->Open Notebook" (NOTE: You will need a Google Account to use Google Colaboratory.) Read each cell (block) of text and run each cell of code by clicking the play button on the left side of the block as indicated by the red circle in the figure below.



As you read and run each cell, answer the following questions. This is a graded assignment.

- 1. Set the **amplitude** of the wave to 0. Describe the graph.
- 2. Now, set the **amplitude** to a positive value. Then, set the **amplitude** to a negative value of the same magnitude (i.e. if you used a +2 in the previous step, you should use -2 for this step). How does the plot with a positive amplitude differ from the plot with the negative value?
- Reset the plot (re-run the code cell). Now, set the frequency to 0 and adjust the phase shift. Describe the graph and how it changes in response to a change in phase shift.





4. Reset the plot. Now, set the **amplitude** to 2 and the **frequency** to 0.1. How many **zeroes** are in the plot? How does the number of **zeroes** change when you **double** the frequency?

5. Create your own sine wave by adjusting all four properties to values of your choice. Provide the equation below, along with a sketch of the graph.

