**TASK 1: Ferris Wheel Design**

**Assignment:**

*Step 1:*

Design a Ferris Wheel and model the trajectory of  a rider on the Ferris Wheel. Before you get started you will need to determine the following:

* What is the diameter of your ferris wheel? \_\_\_\_\_\_\_
* What is the platform height of your ferris wheel? \_\_\_\_\_\_\_
* How long does it take for one trip around the ferris wheel? \_\_\_\_\_\_\_

You also have the option to look up an existing Ferris Wheel and model the trajectory of a rider on that Ferris Wheel. You will need to be able to find the following information about the Ferris Wheel (be sure to site all of your sources of this information).

* What is the diameter of your ferris wheel? \_\_\_\_\_\_\_
* What is the platform height of your ferris wheel? \_\_\_\_\_\_\_
* How long does it take for one trip around the ferris wheel? \_\_\_\_\_\_\_

*Step 2:*

Determine the amplitude and period of the motion you created. Once you determine the amplitude and period, then determine the “a” and “b” value of your sine/cosine function.

Amplitude: \_\_\_\_\_\_\_\_\_\_\_\_\_ Period:  \_\_\_\_\_\_\_\_\_\_\_\_\_

a: \_\_\_\_\_\_\_\_\_\_\_\_\_ b:  \_\_\_\_\_\_\_\_\_\_\_\_\_

*Step 3:*

Sketch three cycles (waves) of motion for the ferris wheel you have designed.

*Step 4:*

Create a sine and cosine function that model your sketch from Step 3. Use the information you’ve outlined in Step 2 to help create your functions.

Sine Function: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Cosine Function: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Step 5:*

Create your final product that you will turn in.

**Assessment Product (what you turn in)**

You will hand in a virtual poster (one page) that showcases the information about the ferris wheel you created or researched. Your virtual poster must include the following information:

* Sketch of the Ferris Wheel with measurements and information included (Step 1)
  + What is the diameter of your ferris wheel? \_\_\_\_\_\_\_
  + What is the platform height of your ferris wheel? \_\_\_\_\_\_\_
  + How long does it take for one trip around the ferris wheel? \_\_\_\_\_\_\_
* Graph at least three cycles (waves) of motion (trips) around the ferris wheel of a rider on the ferris wheel.
* Amplitude and Period of the graphed motion
* Sine Model for the graphed motion
* Cosine Model for the graphed motion

Your virtual poster should clearly show the information above. It should be aesthetically pleasing and creative. Canva.com has many good templates and there are many other great resources for you to use. The final poster should be submitted as a PDF. The scoring rubric for this project is available [***here***](https://docs.google.com/document/d/1Xq7nCVpmMxlNcrEDR-T_27Wc_h6x08jCBgrOljnR7ds/edit?usp=sharing).