

## CALCULUS FINAL PROJECT 2017

Create a poster that models: (Make sure you are not doing the same one as someone else in the class.)

That models a 3D sculpture with discs or washers and calculating the volume. You must have the object plotted on an x-y plane and give the equations of the edges of the object. Then have a section that calculates the volume of the object using calculus (discs or washers). You will also have a separate section that models a cross section of the discs or washers. (See examples below).

Guidelines:

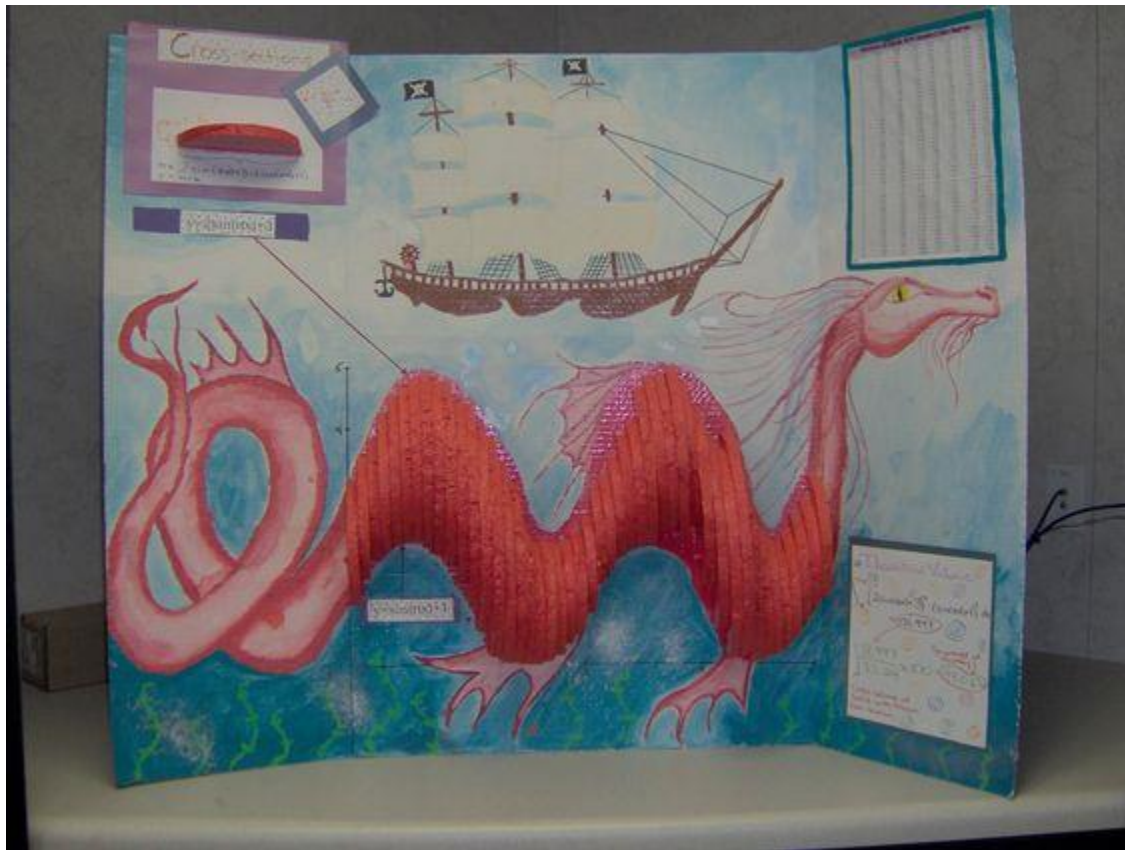
- The base function(s) can be any non-linear function.
- The cross section can be any shape except a square. They must create some kind of disc or washer. If using multiple cross sections, due to more than one region acting as the base of the solid, then the second cross section can be any of your choice. Each section must be modeled on the poster with a cross-section description section.
- The materials used can be no thicker than 0.25". Your model must be at least 6 inches long and have a minimum of 24 laminations (cross sections).
- Those projects showing extra effort and performance can earn extra-credit points.

Be creative. Use you must colors and make it look presentable. **Due Date Monday May 1<sup>st</sup> 2017.**

	Not Present 0	Beginning 2	Developing 3	Accomplished 4	Exceptional 5	Score
Correct Math. No errors in the math.						
Presentation of the poster. Design and Layout.						
Colorful and Creative.						
Poster fulfills the requirements of the project.						
Pictures, clips and art background.						
Labels and graphic Clarity.						
Finished product by the due date.						
Poster shows an understanding of the topic. Calculus.						
Effort/ Challenging yourself.						
Self-Evaluation Rate your Project.						

Total Score: \_\_\_\_\_ / 50

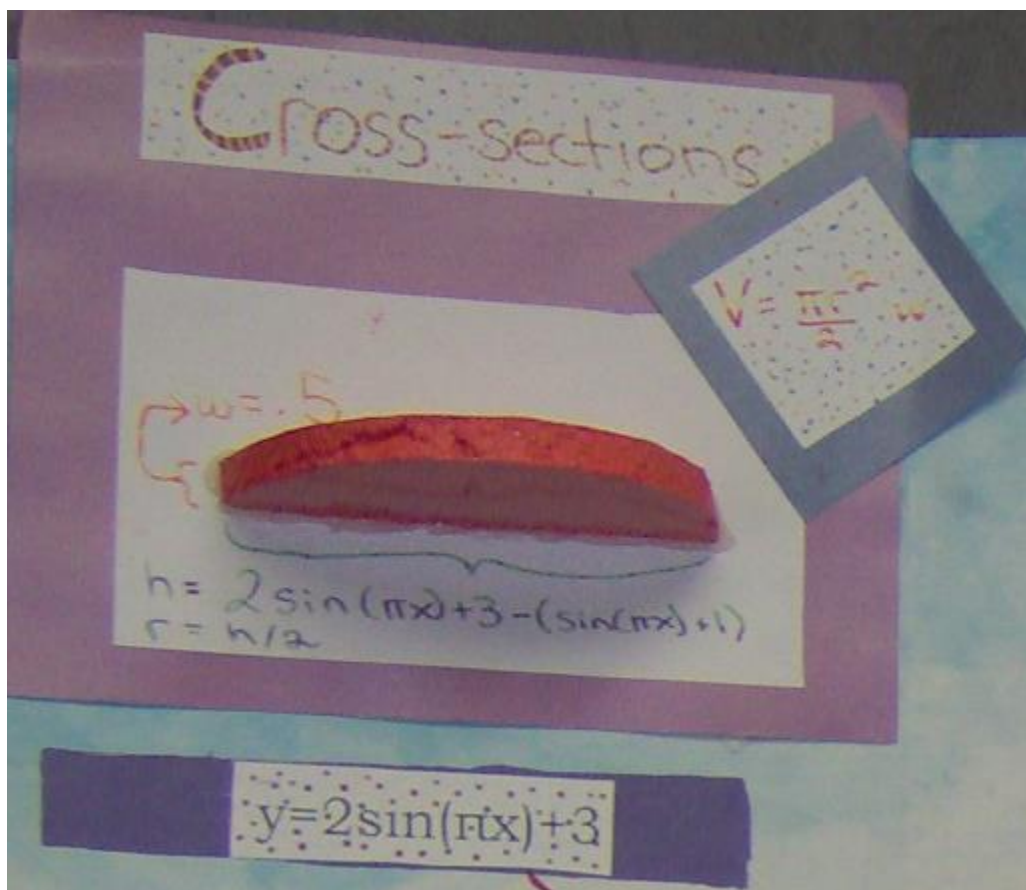
-3D sculpture (must have the 3D visual and the calculus work finding the volume.)





- If you do this one you must have a separate poster with all of the math and graphing this object on an x-y plane.

Cross Section Piece Example:





Volume Example:

Theoretical Volume

$$\int_0^4 (2\sin(\pi x) + 3)^2 - (\sin(\pi x) + 1)^2 dx$$
$$= 131.947$$

Percentage of accuracy

$$\frac{131.947}{133.24} \times 100 = 99.03\%$$

Total volume of Solid with known cross-section.

Plotting the 3D object on an X-Y Plane:

