

Volumes of Known Cross-Section

A.P. Calculus Final Project

Make a Physical Model of a solid with known cross-sections on a base with a standard function. The Following guidelines apply:

- 1) The base function can be any non-linear function except: a parabola, a square root, or an absolute value.
- 2) The cross-section can be any shape except a square.
- 3) The cross-section material can be no thicker than 0.25”.
- 4) Your model must be at least 6” long.
- 5) You Must use at least 24 cross-sections.

Your calculation presentation must include the following information:

- 1) A description of the base region.
- 2) An explanation of what the cross-sections look like.
- 3) The computed volume of each cross-section.
- 4) The total volume of your model using Riemann Sum.
- 5) The exact volume as defined by the definite integral.

Scoring:

- 1) Difficulty of the base functions used-----10 pts
- 2) Difficulty of the cross-section used-----10 pts
- 3) Neatness and appeal of you model-----5 pts
- 4) Presentation of the information and calculations-----25 pts

Those projects showing extra effort and performance can earn extra-credit points!

If any of the guidelines are not followed or any of the required presentation requirments are not included, the project will NOT be graded!