

GETTING STARTED

Four Flash Drives with TI Lanyards

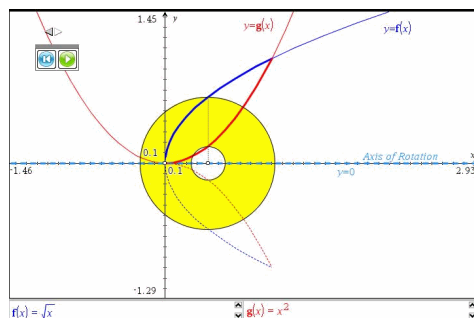
- > TI Nspire 90 Day Trial Software
 - *PC Install*
 - or
 - *MAC Install*
- > TI Nspire Documents
 - *tns Files*

Documents also available at:

www.lcsmath.com/conf

Teaching Volumes of Solids

with the TI-Nspire



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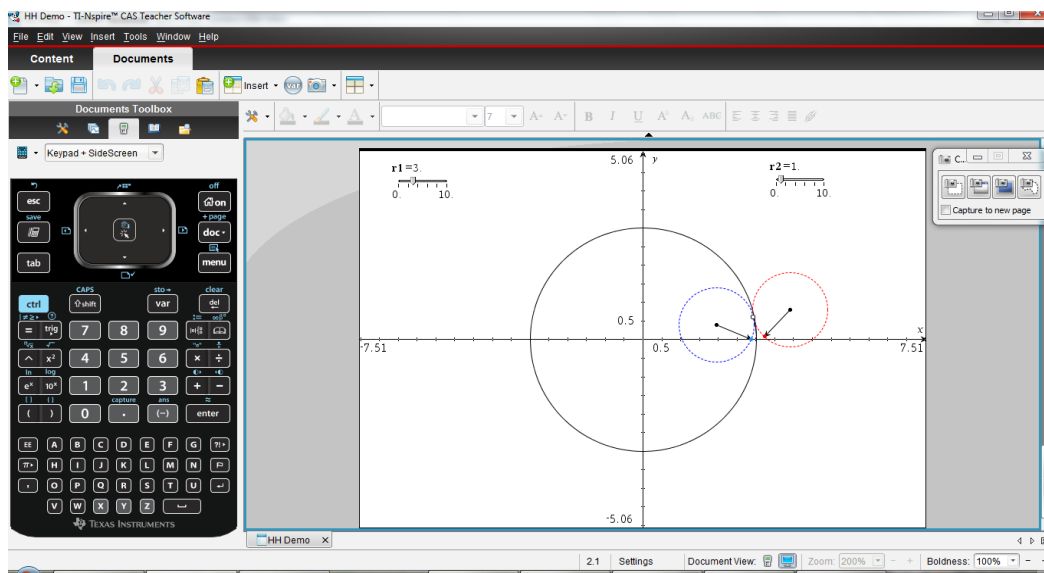


These models are a little faded and dusty nowadays. With the advent of math-graphics software packages such as Maple and Mathematica, which can generate these figures on one's computer screen in a trice, and rotate them for inspection, and transform, deform, and intersect them as desired, it seems absurdly laborious to construct them from wood, card, paper, and string. Making physical models of geometric figures was, though, a favorite pastime for mathematicians and math students through most of the 19th and 20th centuries, and I regret that it seems no longer to be done.

John Derbyshire

Unknown Quantity: A Real and Imaginary History of Algebra

Software vs. Handheld



TI Nspire Basic Skills

Open "*HH Demo*" on Handheld and on Laptop

Area Between Curves

Essential Skills

Draw Region

Choose Variable

Draw Rectangle

Label Height

$$\int \text{height}(x) dx$$

Volume of Solids of Revolution

Let S be the region in the first quadrant bounded by $y = x^2$ and $y = \sqrt{x}$. Find the volume of the solid generated when S is rotated about the x -axis.

Student Skills

Sketch Region

Draw Axis

Reflect Region

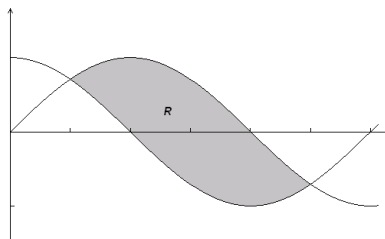
Draw Circles

Label Radii

Identify Bounds

$\int \text{Area}(x)dx$

Perpendicular Cross Sections



Let R be the region bound by the graphs of $y = \cos x$ and $y = \sin x$ as shown in the figure above. The region R is the base of a solid where each cross section perpendicular to the x -axis is a square. Find the volume of the solid.

Student Skills

Sketch Region

Slice Region Perpendicular to axis

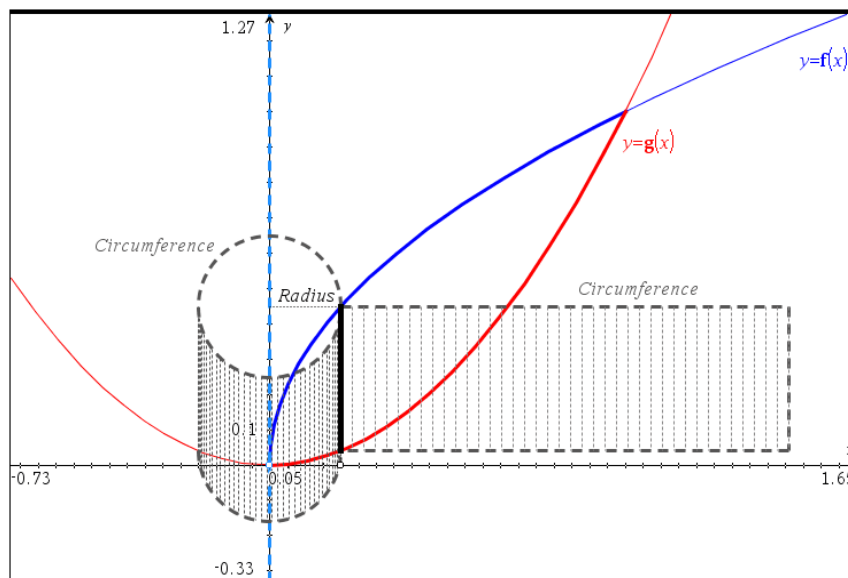
Draw Cross Section

Label Dimensions

Identify Bounds

$\int \text{Area}(x)dx$

Volume by Shells



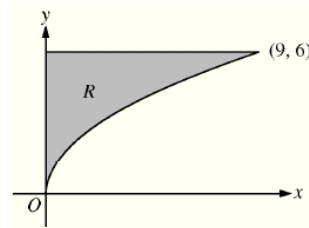
Coming Soon

AP Problems

2010 AP[®] CALCULUS AB FREE-RESPONSE QUESTIONS

CALCULUS AB
SECTION II, Part B
Time—45 minutes
Number of problems—3

No calculator is allowed for these problems.



4. Let R be the region in the first quadrant bounded by the graph of $y = 2\sqrt{x}$, the horizontal line $y = 6$, and the y -axis, as shown in the figure above.
- (a) Find the area of R .
- (b) Write, but do not evaluate, an integral expression that gives the volume of the solid generated when R is rotated about the horizontal line $y = 7$.
- (c) Region R is the base of a solid. For each y , where $0 \leq y \leq 6$, the cross section of the solid taken perpendicular to the y -axis is a rectangle whose height is 3 times the length of its base in region R . Write, but do not evaluate, an integral expression that gives the volume of the solid.