

Math 1432

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Office Hours:

Mondays 1-2pm,
Fridays noon-1pm
(also available by appointment)

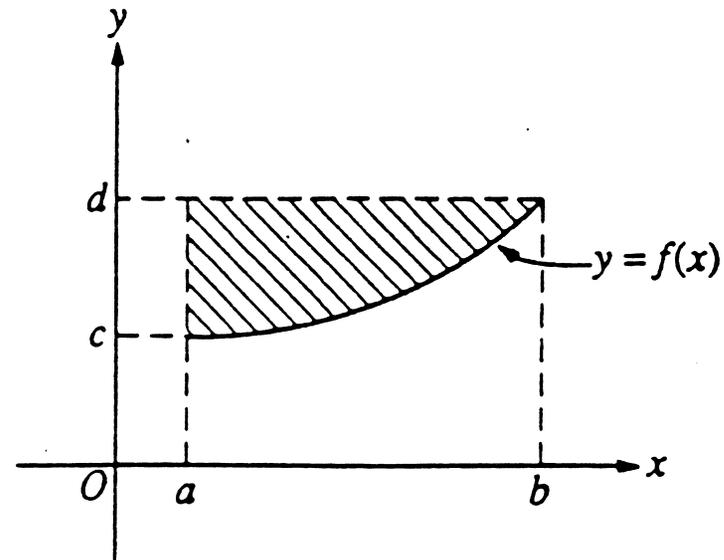
Class webpage:

<http://www.math.uh.edu/~bekki/Math1432.html>

Note: You can work out the poppers before class – answer choices will be given during class

Popper 01

1. Find the average value of the function $f(x) = x^2$ over the interval $[0, 1]$.
2. Compute $\int (x+1)^{1/3} x \, dx$.
3. Which of the following represents the area of the shaded region in the figure shown?



4. The area of the region enclosed by the graphs of $y = x^2$ and $y = x$ is

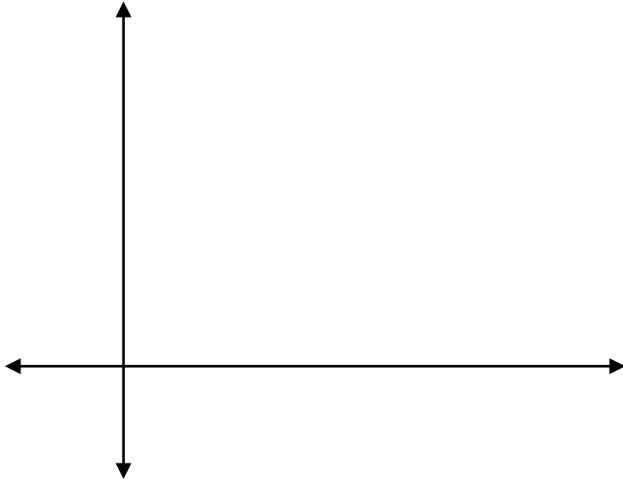
More About Volume

Disc Method:

Revolving about the x-axis: $V = \int_a^b \pi [f(x)]^2 dx$

Revolving about the y-axis: $V = \int_c^d \pi [g(y)]^2 dy$

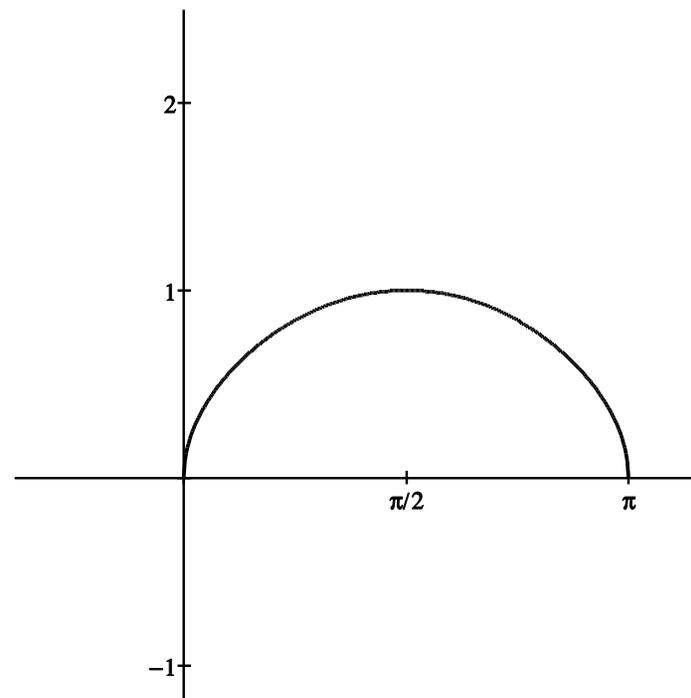
Let R be the region in the first quadrant bounded by the y -axis and the graphs of $y = x^2$ and $y = 2$. Sketch and shade the region R . Label points on the x and y -axis.



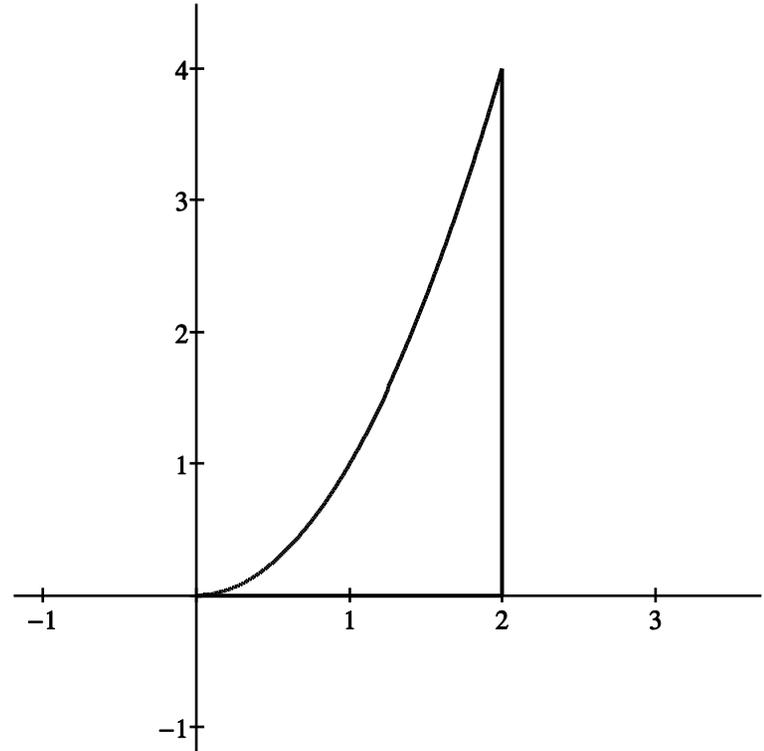
Give the formula for the volume of the solid generated when the region R is rotated about the y -axis.

Rotate the region enclosed by $y = \sqrt{\sin x}$
Determine the volume of the solid formed.

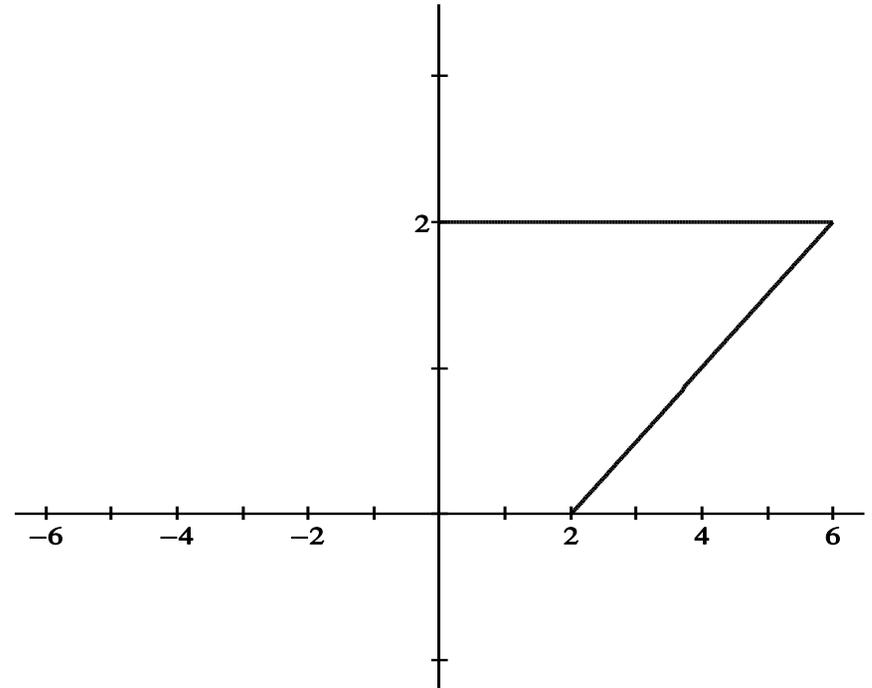
$0 < x < \pi$ about the x-axis.



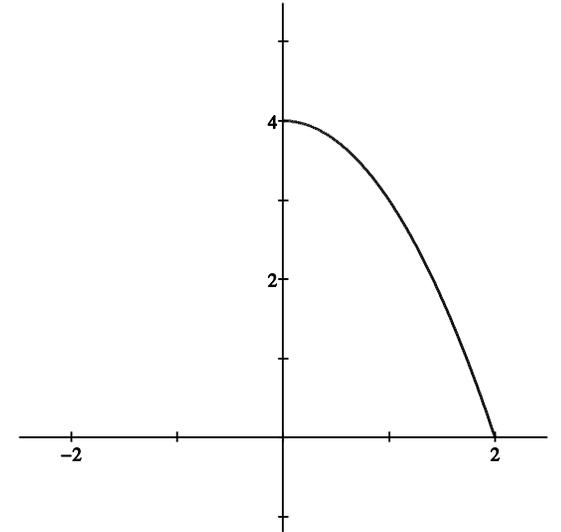
Rotate the region enclosed by $y = x^2$, $y = 0$, $x = 2$ about the x -axis. Give the formula for the volume of the solid formed.



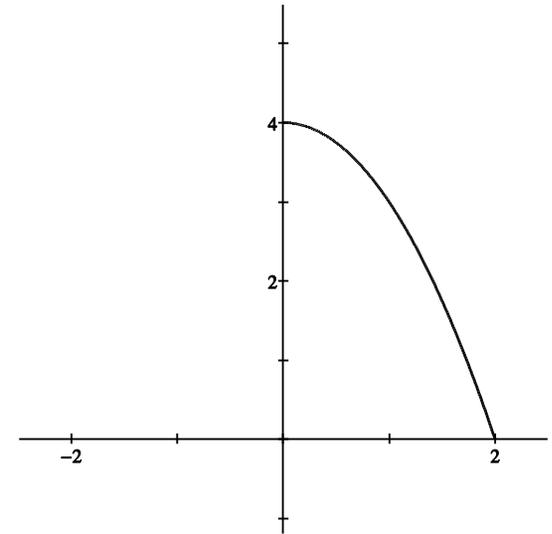
Consider the region in the first quadrant bounded by $y = \frac{1}{2}x - 1$, $y = 2$. Give the formula for the volume of the solid formed by revolving this region around the y -axis.



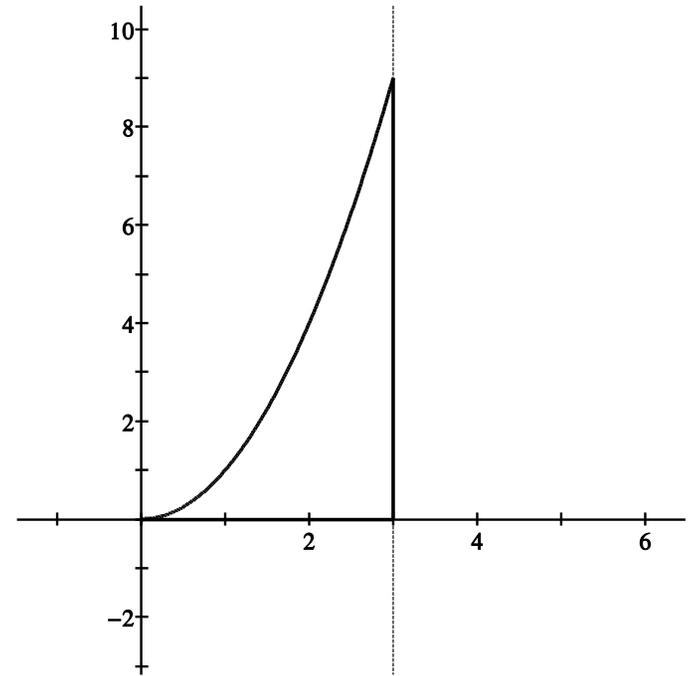
Consider the region in the first quadrant enclosed by $y = 4 - x^2$. Give the formula for the volume of the solid formed by revolving this region about the x -axis.



Now consider the region in the first quadrant enclosed by $y = 4 - x^2$. Give the formula for the volume of the solid formed by revolving this region about the y-axis.



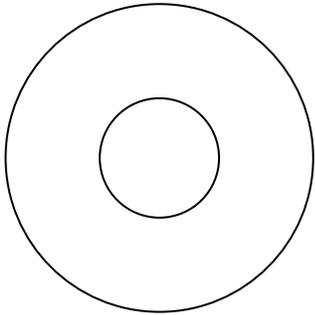
Consider the region enclosed by $y = x^2$, $y = 0$, $x = 3$. Give the formula for the volume of the solid formed by revolving this region around the line $x = 3$.



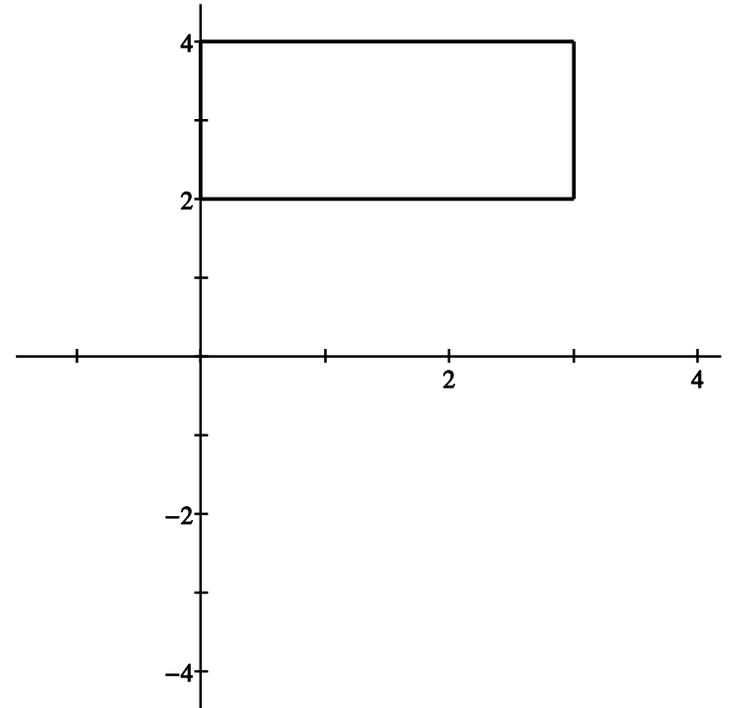
Washer Method

Revolving about the x-axis: $V = \int_a^b \pi \left([f(x)]^2 - [g(x)]^2 \right) dx$

Revolving about the y-axis: $V = \int_c^d \pi \left([f(y)]^2 - [g(y)]^2 \right) dy$



Consider the region enclosed by $y = 2$, $y = 4$, $x = 0$, $x = 3$. Find the volume of the solid formed by revolving this region around the x -axis.



(popper)

5. The region enclosed by the x-axis, the line $x = 3$, and the curve $y = \sqrt{x}$ is rotated about the x-axis. What is the volume of the solid generated?