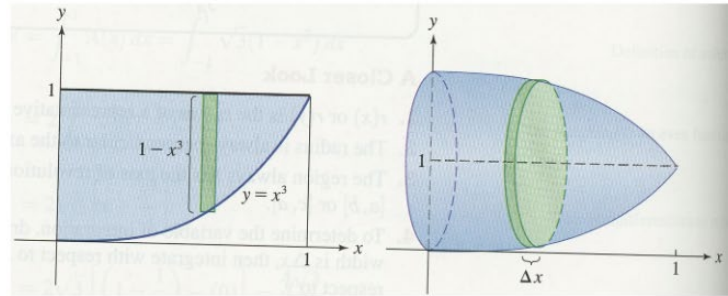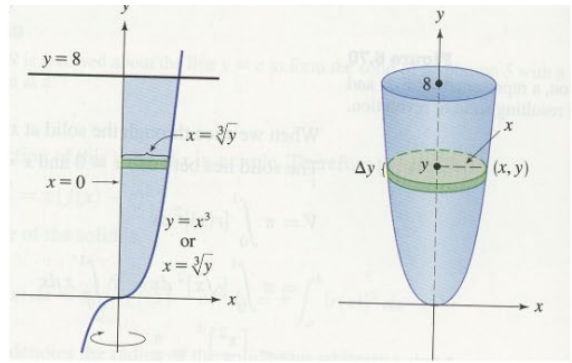The region bounded by the graph of $y = x^2$, $y = 1$, and $x = 0$ is rotated about the line $y = 1$. Find the volume of the resulting solid.
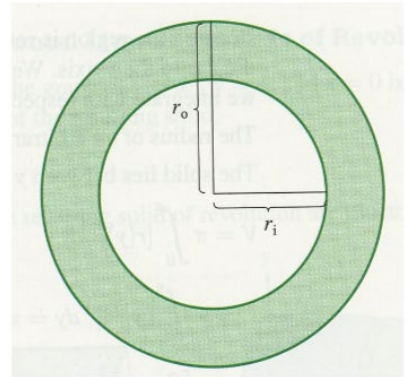
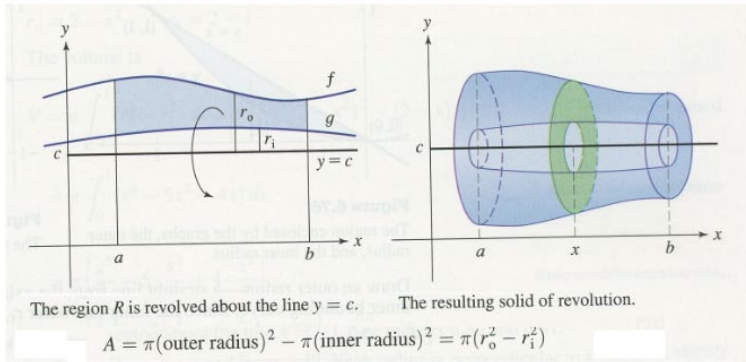The region bounded by the graphs of y = x^3, y = 8, and x = 0 is rotated about the y-axis. Find the volume of the resulting solid.
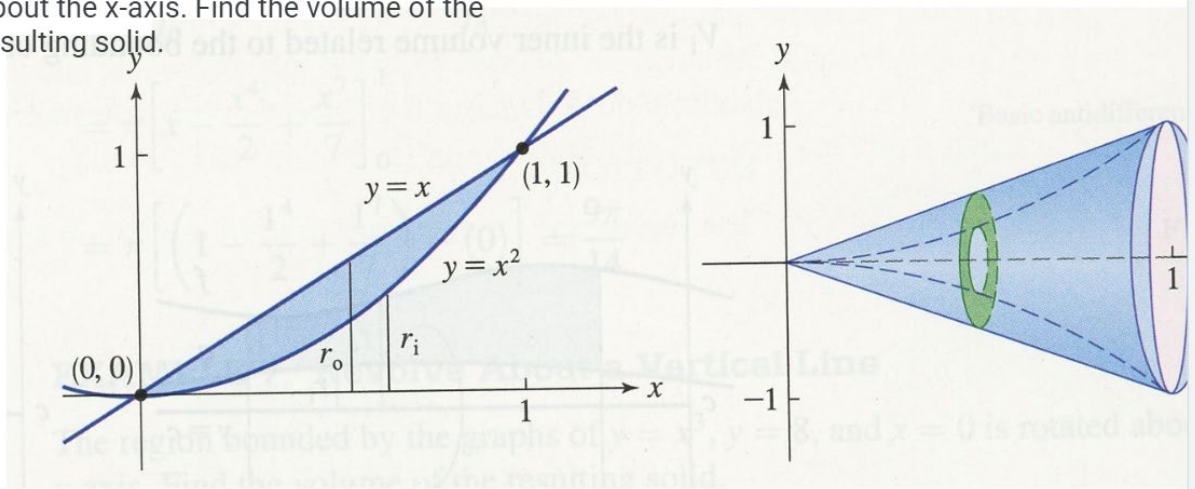
See

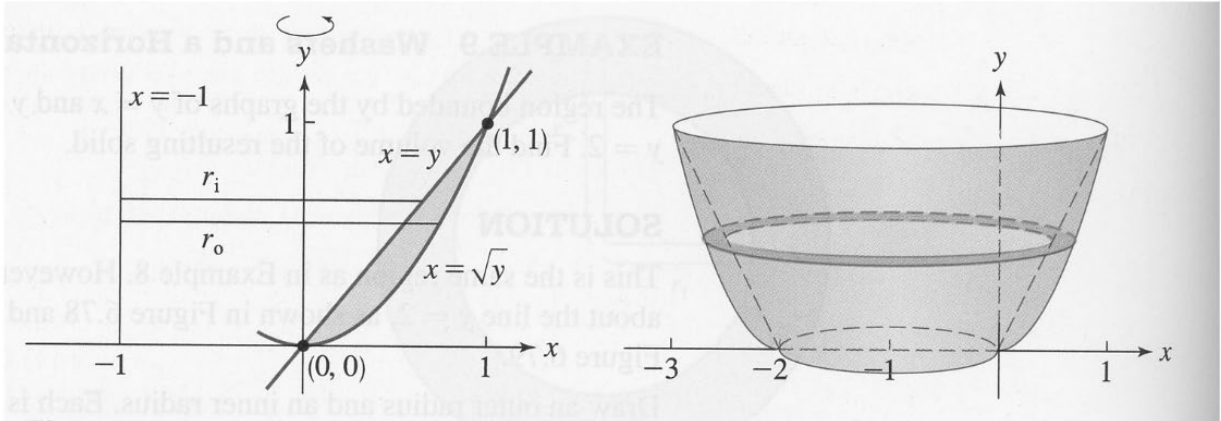## The washer method = the disk method with a hole in it

The region R is revolved about the line $y = c$.   The resulting solid of revolution.

$$A = \pi(\text{outer radius})^2 - \pi(\text{inner radius})^2 = \pi(r_o^2 - r_i^2)$$

The graphs of y = x and y = x^2 intersect at the points (0,0) and (1,1). The region bounded by these graphs is revolved about the x-axis. Find the volume of the resulting solid.

$y = x$

$y = x^2$

$(1, 1)$

$(0, 0)$

r_o

r_i

y

x

y

1

-1

1

The region bounded by the graphs of y= x and y = x^2 is revolved about the line y = 2. Find the volume of the resulting solid.
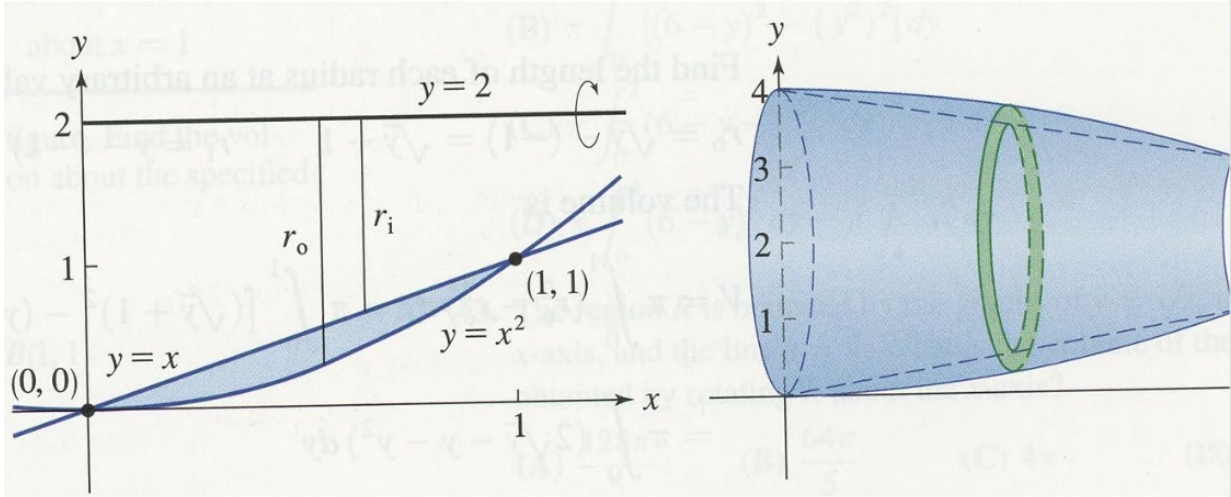
The region bouned by the graphs of y = x
and y = x^2 is revolved about the line
x = -1.
Find the volume of the resulting solid.

The region bounded by the graphs of y = x
and y = x^2 is revolved about the y-axis.
Find the volume of the resulting solid.