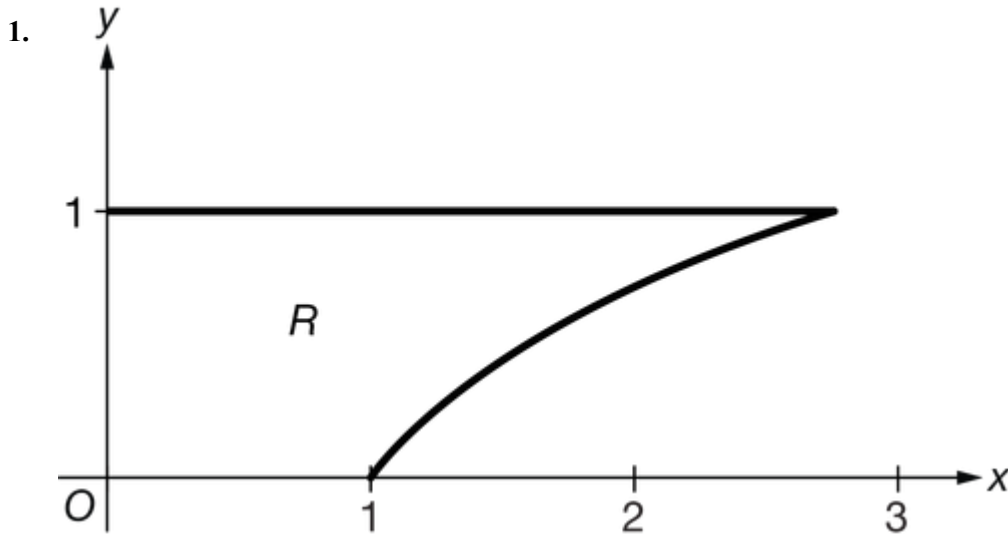


Wrap Up Volume 1

Name _____



Let R be the region in the first quadrant bounded by the x - and y -axes, the horizontal line $y = 1$, and the graph of $y = \ln x$, as shown in the figure above. What is the volume of the solid generated when region R is revolved about the y -axis?

- (A) $\pi(e - 1)$
- (B) $\frac{\pi(e^2 - 1)}{2}$
- (C) $\pi(e^2 - 1)$
- (D) $2\pi(e^2 - 1)$

2. Let R be the triangular region in the first quadrant with vertices at points $(0, 0)$, $(h, 0)$, and (h, r) , where r and h are positive constants. Which of the following gives the volume of the solid generated when region R is revolved about the x -axis?



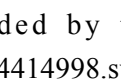
Wrap Up Volume 1


(A) $\pi \int_0^r \left(\frac{h}{r}x\right)^2 dx$


(B) $\pi \int_0^h \left(\frac{h}{r}x\right)^2 dx$

(C) $\pi \int_0^r \left(\frac{r}{h}x\right)^2 dx$


(D) $\pi \int_0^h \left(\frac{r}{h}x\right)^2 dx$


3. The base of a solid is the region bounded by the x-axis and the graph of . For the solid, each cross section perpendicular to the x-axis is a square. What is the volume of the solid?

(A) 

(B) 

(C) 2

(D) 

(E) 

4. The region in the first quadrant bounded by the graph of $y = \sec x$, $x = \frac{\pi}{4}$, and the axes is rotated about the x-axis. What is the volume of the solid generated?



Wrap Up Volume 1

(A) $\frac{\pi^2}{4}$

(B) $\pi - 1$

(C) π

(D) 2π

(E) $\frac{8\pi}{3}$