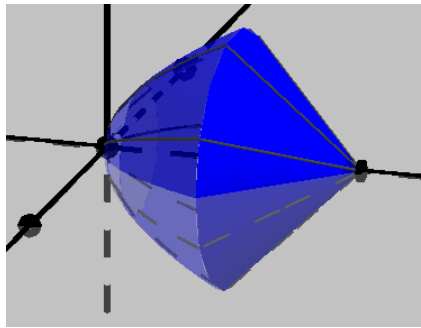
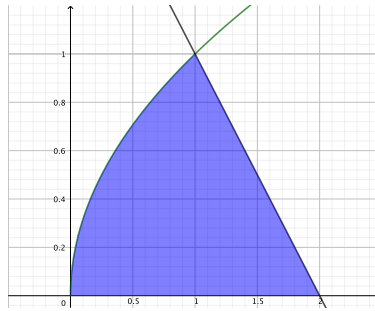
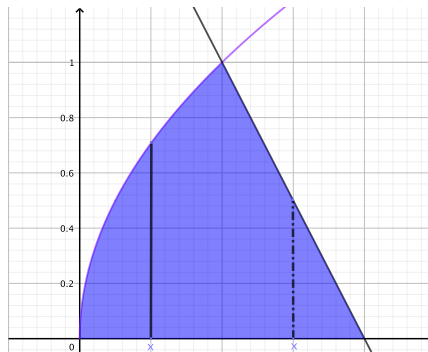


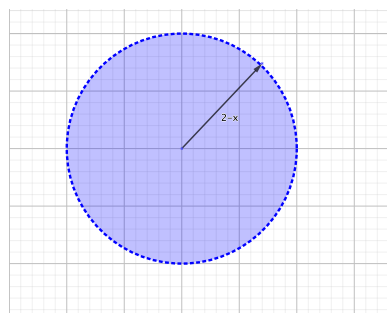
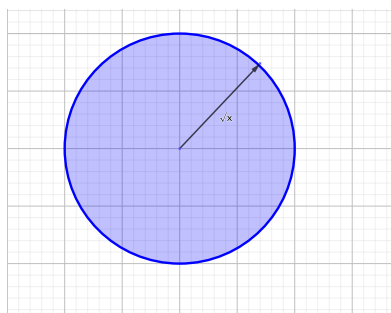
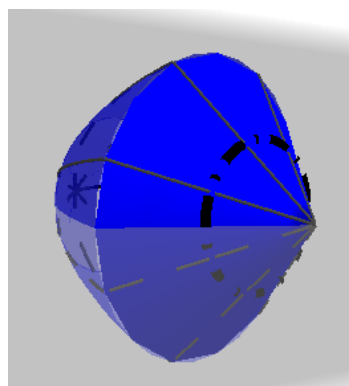
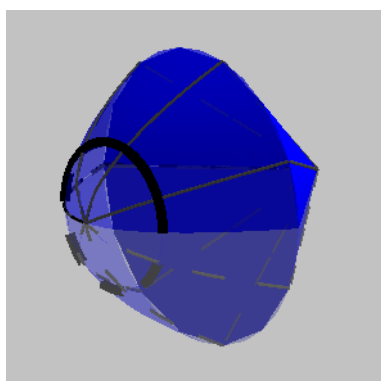
Spring 2021 MATH 76  
Activity 2

1. The main goal of this problem is to determine the volume of the solid  $S$  obtained by rotating the region bounded by the graphs of  $y = \sqrt{x}$ ,  $y = 2 - x$ , and  $y = 0$  about the  $x$ -axis (see figures below).

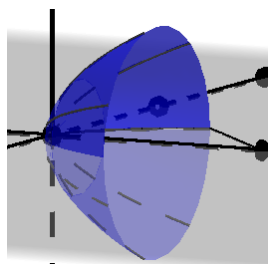
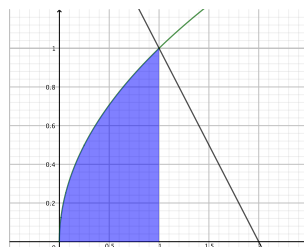


- (a) Locate where the graphs of  $y = \sqrt{x}$  and  $y = 2 - x$  intersect.
- (b) Notice that the radii of the disks (see figures below) obtained by slicing the solid  $S$  perpendicularly to the  $x$ -axis, change from  $\sqrt{x}$  (on the left hand side of the intercept of (a)) to  $2 - x$  (on the right hand side of the intercept of (a)).

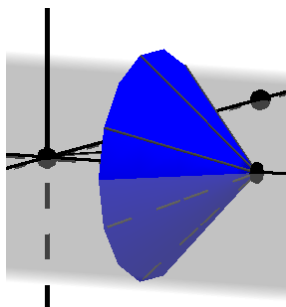
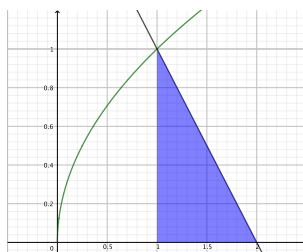




- i. First set up the volume of the solid obtained by rotating the region shaded on the figure below.
- ii. Compute that volume.

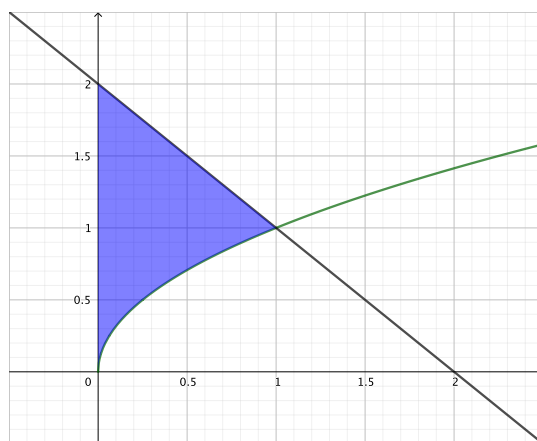


- (c)
  - i. Next, set up the volume of the solid obtained by rotating the region shaded on the figure below.
  - ii. Compute that volume.

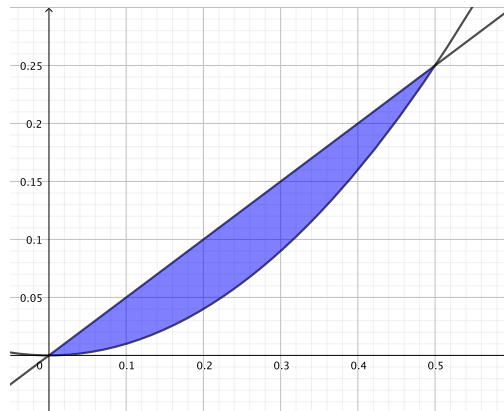


(d) By using parts (b) and (c) above, determine the volume of the solid  $S$ .

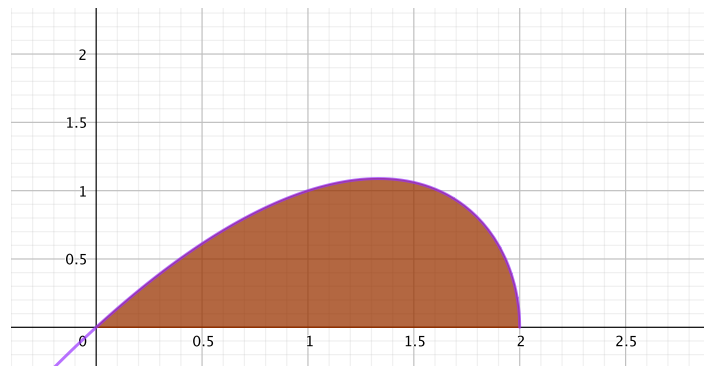
2. What is the volume of the solid obtained by rotating the region bounded by the graphs of  $y = \sqrt{x}$ ,  $y = 2 - x$  and  $x = 0$  about the  $x$ -axis?



3. Compute the volume of the solid obtained by revolving the area between the graphs of  $y = x^2$  and  $y = \frac{x}{2}$  about the  $y$ -axis.



4. (a) Determine the volume of the solid obtained by rotating the region between the graphs of  $y = x\sqrt{2-x}$  and  $y = 0$  about the  $x$ -axis.



- (b) Compute the volume of the solid obtained by rotating the same region about the  $y$ -axis.