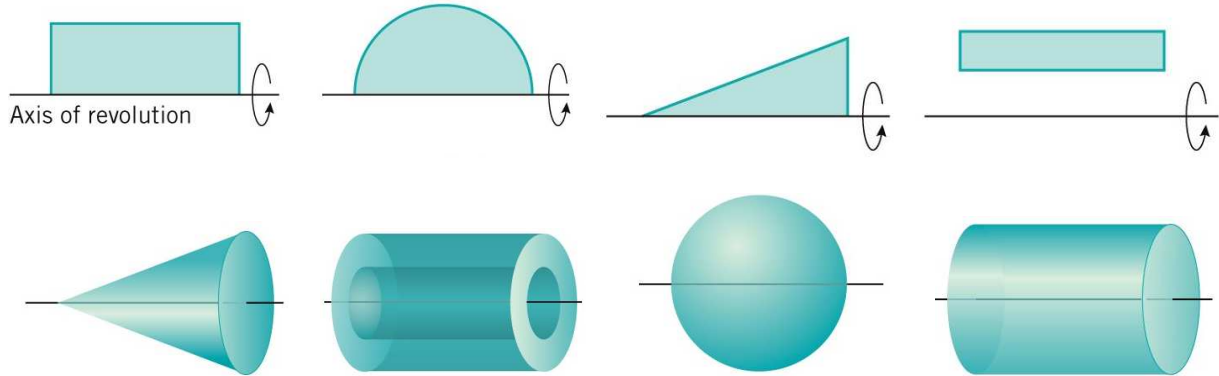
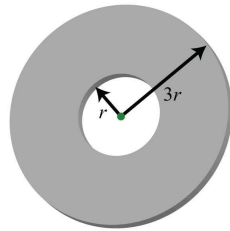
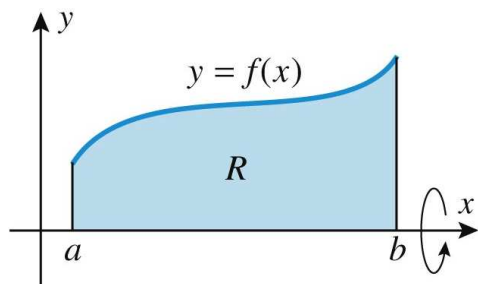


### Volumes by Slicing: Disks and Washers (Section 6.2)

**Warm-up:** What is the area of the washer if the hole has a diameter of 10 cm?



### Volumes by Disks



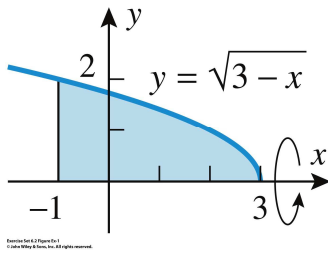
1. In the figure above, if you revolve the function  $f(x)$  about the  $x$ -axis, you will create a solid. What will be the shape of the cross section?
2. Determine the area of the cross section.

**Volume of a Solid: Method of Disks**

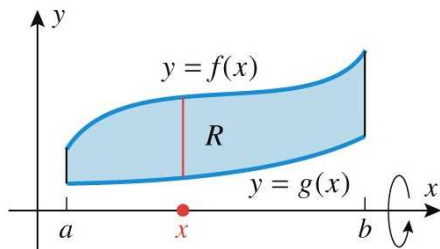
### Volumes by Slicing: Disks and Washers (Section 6.2)

**Example 1:** Find the volume of the solid that is obtained when the region under the curve  $y = \sqrt{x}$  over  $[1, 4]$  is revolved about the x-axis.

**Practice Problem 1:** Find the volume of the solid that results when the shaded region is revolved about the x-axis.



### Volumes by Washers

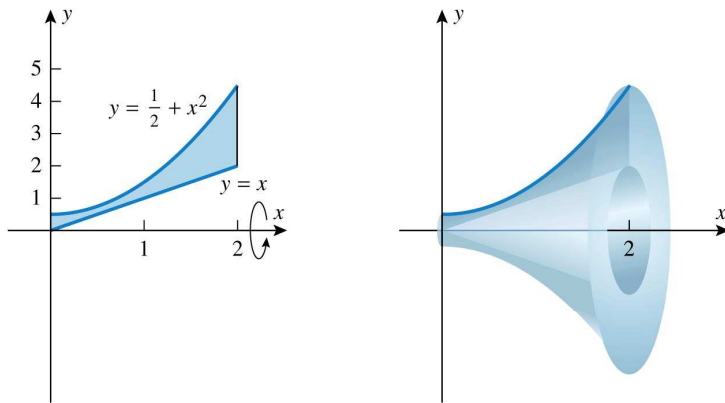


1. In the figure above, describe the solid that will be generated by revolving the shaded region about the x-axis.
2. What is the shape of the cross section of the solid?
3. Determine the area of the cross section.

**Volume of a Solid: Method of Washers**

**Volumes by Slicing: Disks and Washers (Section 6.2)**

**Example 2:** Find the volume of the solid generated when the region between the graphs of the equations  $f(x) = \frac{1}{2} + x^2$  and  $g(x) = x$  over the interval  $[0, 2]$  is revolved about the x-axis.



*Unequal scales on axes*

Region defined  
by  $f$  and  $g$

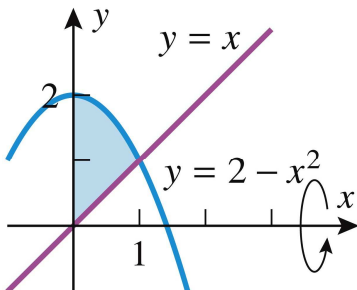
(a)

The resulting  
solid of revolution

(b)

Figure 6.2.13  
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**Practice Problem 2:** Find the volume of the solid that results when the shaded region is revolved about the x-axis.



Exercise Set 6.2 Figure 6.2.2  
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