

Example 1. Let S be a cone of radius r and height h . Show that the volume of S is $V = \frac{1}{3}\pi r^2 h$.

Example 2. Let S be a solid obtained by rotating about the x -axis the region under the curve $y = \sqrt{x}$ from 0 to 2.

Example 3. Let S be a solid obtained by rotating about the y -axis the region bounded by $y = x^4$ and $y = 4$.

Example 4. The region R is in the first quadrant enclosed by the curves $y = x$ and $y = x^3$. Find the volume of the solid obtained by rotating R about the x -axis.

Example 5. Find the volume of the solid obtained by rotating the region in Example 4 about the line $y = 2$.

Example 6. Find the volume of the solid obtained by rotating the region in Example 4 about y -axis.

Example 7. Find the volume of the solid obtained by rotating the region in Example 4 about the line $x = 1$.