

Solids of Revolution

1. Find the volume of a pyramid whose base is a square with side 5 m and its height is equal to 9 m.
2. Find the volume of the solid obtained by rotating about the x -axis the region under the curve $y = \sqrt{x}$ on the interval $[0,4]$.
3. Consider the region enclosed by the curve $y = \sqrt{x}$ and the lines $y = \frac{1}{10}x$ and $x = 4$. We rotate this region around the x -axis. Find the volume of this solid.

4. Let \mathcal{R} be the region enclosed by the curve $y = \sqrt{x}$ and the lines $y = \frac{1}{10}x$ and $x = 4$.

(a) We rotate \mathcal{R} around the x -axis. Find the volume of this solid.

(b) We rotate \mathcal{R} around the line $y = 3$. Find the volume of this solid.

(c) Let \mathcal{R}' be the region enclosed by the curve $y = \sqrt{x}$ and the line $y = \frac{1}{10}x$. We rotate \mathcal{R}' around the line $x = -2$. Find the volume of this solid.

(d) We rotate \mathcal{R} around the line $x = -1$. Find the volume of this solid.

5. Find the volume of the solid obtained by rotating about the y -axis the region bounded by $y = 2x^2 - x^3$ and the x -axis.