

Volumes of solids of revolution - for regions bounded by curves in parametric form.

(33, 34, 35, 36, 37, 38)

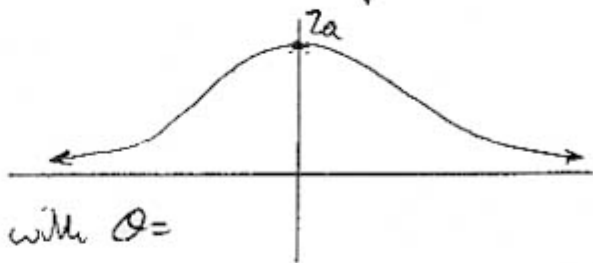
1. For problems in Section 11.2 (pp. 688), find the volume of the solid of revolution formed when the region is revolved about the x -axis.

2. For the region in Example 2 on pp. 684-685, find the volume of the solid formed by rotating the loop about the y -axis.

3. For the region bounded by the curve $\begin{cases} x = a \cos t \\ y = b \sin t \end{cases}$ $0 \leq t \leq \frac{\pi}{2}$ and the y -axis, find the volume of the solid of revolution formed by rotating about the y -axis.

4. For the "bell shaped" curves with parametric equations

$$\begin{cases} x = 2a \cot t \\ y = 2a \sin^2 t \end{cases}, \quad 0 < t < \pi$$



a. Find the slope of the tangent line with $\theta =$

b. Find the points of inflection, where $\frac{d^2y}{dx^2}$ changes sign.

c. Find the total area under the curve and above the x -axis.

d. Find the surface area of the solid formed by rotating about the x -axis.