

Volumes-by-Cross-Sections Review



The following questions refer to the first-quadrant region bounded by $y = x^3$ and $y = 2x$.

Set-up but do not evaluate the integrals.

1. Find the volume of the region generated when rotated about the x -axis.
2. Find the volume of the region generated when rotated about the y -axis.
3. Find the volume of the region generated when rotated about $y = -2$.
4. Find the volume when cross-sections perpendicular to the x -axis are sides of squares.
5. Find the volume of the region generated when rotated about $x = 2$.
6. Find the volume when cross-sections perpendicular to the y -axis are legs of isosceles right triangles.
7. Find the volume of the region generated when rotated about $y = 5$.
8. Find the volume when cross-sections perpendicular to the x -axis are diameters of circles.
9. Find the volume of the region generated when rotated about $x = -3$.
10. Find the volume when cross-sections perpendicular to the y -axis are sides of squares.