

For each three dimensional object described below,

- (a) Sketch the object
- (b) Set up an integral that gives you the volume of the object
- (c) Evaluate the integral to find the volume

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1. The solid formed when the graph of $y = x^2 + 1$ from $x = 0$ to $x = 2$ is rotated about the x -axis.
 2. The solid formed when the region bounded by $y = x^2$ and $y = 4$ is rotated about the x -axis.
 3. Repeat #1 and #2, but rotating the region about the y -axis rather than the x -axis. (In the case of #2, only rotate the region bounded by $y = x^2$ and $y = 4$ that lies in the first quadrant.)
 4. The sphere of radius r .