

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 sphere of radius r .
2. The solid formed when the region in the first quadrant bounded by $y = x^2$ and $y = 4$ is rotated about the y -axis.
3. The solid formed when the region between the graph of $y = x^2 + 1$ and $y = 0$ from $x = 0$ to $x = 2$ is rotated about the y -axis.
4. The solid formed when the region bounded by $y = x^2$ and $y = x + 2$ is rotated around the line $y = 4$.