

For each three dimensional object described below,

- (a) Sketch the object, including a cross-section with labeled radii.
- (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 curve $y = x^2 + 1$ is rotated about the y -axis.
 2. The solid formed by rotating the region bounded by $y = x^2$ and $y = 4$ about the line $y = 6$.

Evaluate the following integrals using integration by parts,
and *check your answers!!*

1. $\int x e^x dx$

2. $\int x \ln(x) dx$