
Volumes of Solids of Revolution

Practice Problems

Problems. In each of the following problems, find the volume of the solid obtained by revolving the region bounded by the given curves about the specified line. Sketch the region, the solid, and a typical disk or washer.

1. $y = 1/x$, $x = 1$, $x = 2$, $y = 0$; about the x -axis
2. $y = 1 - x^2$, $y = 0$; about the x -axis
3. $x = 2\sqrt{y}$, $x = 0$, $y = 9$; about the y -axis
4. $y = \ln x$, $y = 1$, $y = 2$, $x = 0$; about the y -axis
5. $y = x$, $y = \sqrt{x}$; about $y = 1$
6. $y = 1/x$, $y = 0$, $x = 1$, $x = 3$; about $y = -1$
7. $y = x$, $y = \sqrt{x}$; about $x = 2$
8. $y = \frac{1}{4}x^2$, $y = 5 - x^2$; about the x -axis
9. $y = x^3$, $y = x$, $x \geq 0$; about the x -axis
10. $y = x^3$, $y = 8$, $x = 0$; about the y -axis
11. $y = \sqrt{x}$, $x = 0$, $x = 1$; about the x -axis
12. $y = \sqrt{r^2 - x^2}$, $y = 0$; about the x -axis