

We have considered only solids of revolution in which a region is rotated about the  $x$ -axis. The formula we used would need some adjustment if the region were rotated about some other horizontal line, since the radius of revolution would be represented by some expression other than  $f(x)$ . Such solids of revolution will not be considered in this course.

## 15.6 EXERCISES

### PRACTICE

Find the volume of the solid generated when the regions bounded by the graphs of the given equations and the  $x$ -axis are rotated about the  $x$ -axis.

1.  $y = x, x = 0, x = 2$

2.  $y = 3x, x = 1, x = 3$

3.  $y = 2\sqrt{x}, x = 0, x = 4$

4.  $y = \sqrt[3]{x}, x = 0, x = 8$

5.  $y = e^x, x = -1, x = 2$

6.  $y = e^{-x}, x = -1, x = 2$

7.  $y = 1 - x^2, x = -1, x = 1$

8.  $y = 4 - x^2, x = -2, x = 2$

9.  $y = (16 - x^2)^{\frac{1}{2}}, x = 0, x = 4$

10.  $y = \sqrt{3 - x^2}, x = 0, x = 1$

11.  $y = \frac{4}{x}, x = 1, x = 3$

12.  $y = \frac{2}{x}, x = 1, x = 2$

13.  $y = \frac{1}{\sqrt{x}}, x = 1, x = 6$

14.  $y = \frac{2}{\sqrt{x}}, x = 1, x = 5$

15.  $y = x + \sqrt{x}, x = 1, x = 4$

16.  $y = \sqrt{x} - x, x = 0, x = 1$