8.11 / Practice workbook

Volume with Washer Method: Revolving Around the x- or y-Axis

Practice

Problems 1–6 / Show your reasoning

1 The region between $y = x^2$ and $y = 4$ is revolved around the x-axis. Find the volume.

2 The region between $y = \sqrt{x}$ and $y = x$ is revolved around the x-axis. What is the volume?

A. $\frac{\pi}{6}$

B. $\frac{\pi}{30}$

C. $\frac{\pi}{2}$

D. $\frac{\pi}{3}$

3 The region between $y = x$ and $y = x^3$ in the first quadrant is revolved around the x-axis. Find the volume.

4 The region between $y = x^2$ and $y = 2x$ is revolved around the y-axis. Find the volume.

5 The region bounded by $y = e^x$, $y = 1$, and $x = 1$ is revolved around the x-axis. Find the volume.

6 The region between $y = 3 - x$ and $y = \frac{2}{x}$ is revolved around the x-axis. Find the volume.

8.11 / Answer key

Volume with Washer Method: Revolving Around the x- or y-Axis

1 $\frac{256\pi}{5}$

2 (A)

3 $\frac{4\pi}{21}$

4 $\frac{8\pi}{3}$

5 $\frac{\pi(e^2-3)}{2}$

6 $\frac{\pi}{3}$