**In Exercises 1-5**, find the volume of the solid obtained by rotating the region specified about the x-axis (disk method).

**Exercise 1.** $y = x^2$ **,** $x = 1$**,** $y = 0$**.**

**Exercise 2.** $y = e^x$ **,** $x = 0$**,** $x = 1$**,** $y = 0$**.**

**Exercise 3.** $y = \dfrac{1}{x}$ **,** $x = 1$**,** $x = 2$**,** $y = 0$**.**

**Exercise 4.** $y = \sqrt{x-1}$ **,** $x = 2$**,** $x = 5$**,** $y = 0$**.**

**Exercise 5.** $y = x^2$ **,** $0 \leq x$ **and** $x \leq 2$**,** $x = 0$**,** $y = 4$**.**

**In Exercises 6-10**, find the volume of the solid obtained by rotating the region specified about the y-axis (shell method).

**Exercise 6.** $y = x^2$ **,** $x = 1$**,** $y = 0$**.**

**Exercise 7.** $y = e^x$ **,** $x = 0$**,** $x = 1$**,** $y = 0$**.**

**Exercise 8.** $y = \dfrac{1}{x}$ **,** $x = 1$**,** $x = 2$**,** $y = 0$**.**

**Exercise 9.** $y = \sqrt{x-1}$ **,** $x = 2$**,** $x = 5$**,** $y = 0$**.**

**Exercise 10.** $y = x^2$ **,** $0 \leq x$ **and** $x \leq 2$**,** $x = 0$**,** $y = 4$**.**

**In Exercises 11-15**, find the volume of the solid obtained by rotating the region specified about the given line.

**Exercise 11.** $y = x$ , $y = \sqrt{x}$, about the line $y = 1$.

**Exercise 12.** $y = x^2$ , $y = 4$, about the line $y = 4$.

**Exercise 13.** $y = x^4$ , $y = 1$, about the line $y = 2$.

**Exercise 14.** $y = \dfrac{1}{x}$ , $y = 0$, $x = 1$, $x = 3$, about the line $y = -1$.

**Exercise 15.** $y = x^2$ , $x = y^2$, about the line $x = -1$.