1. Let A be the area bound by $f(x) = 1 - x^2$, the x-axis, and the y-axis. Find the volume of the solid of revolution formed by rotating A about the y-axis.

    (a) Draw A and the solid of revolution. What shape are the cross sections?

    (b) Find the area of an arbitrary cross-section $A(y)$.

    (c) Calculate the volume of the solid by integrating $A(y)$ over an appropriate interval.

2. Let A be the area bound by $f(x) = \dfrac{x^2}{3}$ and $g(x) = x$. Find the volume of the solid of revolution formed by rotating A about the x-axis.

    (a) Draw A and the solid of revolution. What shape are the cross sections?

    (b) Find the area of an arbitrary cross-section $A(x)$.

    (c) Calculate the volume of the solid by integrating $A(x)$ over an appropriate interval.

3. Find the volume of the solid formed by rotating the area bounded by $f(x) = (x-2)^3$, the x-axis, and $x = 3$ about $x = 1$.

4. Find the volume of the solid formed by rotating the area bounded by $y = \frac{1}{2}x - 1$ and the x and y axes about $y = -3$.