1. Find the volume of the solid obtained by rotating the region bounded by the curves $y = \sqrt{x - 1}$, $y = 0$ and $x = 5$ about the $x$-axis.

2. Find the value of the integral

$$\int \frac{x}{\sqrt{1 - x^4}} \, dx$$
3. Find the area of the region enclosed by the graphs of $x = y + 1$ and $x = (y - 1)^2$.

4. Find the value of $\lim_{t \to 0} (1 + 2t)^{\frac{3}{2}}$. 