Consider the region bounded by the curves $y^2 + x = 1$ and $y^2 - x = 1$.

Problem 1. Draw a sketch of the area between the curves.

Problem 2. Set up an integral whose value is the area between the curves. Do not evaluate.

Problem 3. The above region is rotated around the line $y = 2$. Use the **shell method** to set up an integral describing the volume of the resulting solid of revolution. Do not evaluate.