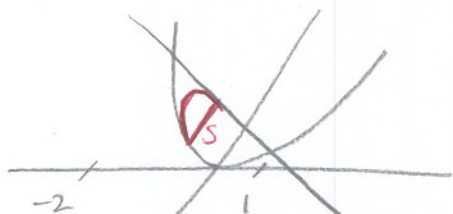


The base of a solid is the area in the xy -plane bounded by $y = x^2$ and $y = 2 - x$. Cross sections perpendicular to the x -axis are semicircles. Write an integral (or sum of integrals) for the volume. DO NOT EVALUATE THE INTEGRAL. SCORE: ___ / 4 POINTS



$$\begin{aligned} x^2 &= 2 - x \\ x^2 + x - 2 &= 0 \\ (x + 2)(x - 1) &= 0 \\ x &= -2, 1 \end{aligned}$$

$$\int_{-\frac{1}{4}}^{\frac{1}{4}} \frac{1}{8} \pi (2 - x - x^2)^2 dx$$

Annotations: The interval $[-\frac{1}{4}, \frac{1}{4}]$ is marked on the x-axis. The integrand $\frac{1}{8} \pi (2 - x - x^2)^2$ is shown with brackets indicating the components: $\frac{1}{8}$, π , $(2 - x - x^2)^2$, and dx . The term $(2 - x - x^2)^2$ is further annotated with 1 and $1\frac{1}{2}$ under the 2 and $-x$ terms respectively, and $\frac{1}{4}$ under the $-x^2$ term.