Quiz #12, Friday November 20
Math 221 Lecture EL1

Instructions. Be sure to show your work and explain your reasoning where necessary for full credit. This quiz has three problems, and two pages.

1. Find the indefinite integral
\[ \int \sqrt{\cot x \csc^2 x} \, dx \]

2. Evaluate the definite integral:
\[ \int_{-1}^{0} x(x + 1)^9 \, dx \]
3. The region $R$ enclosed by the curves $x = 1 - y^2$ and $x = y^2 - 1$ is shown in the picture, where $R$ is shaded gray. Use calculus to find the area of $R$. You will need to decide whether to integrate with respect to $x$ or $y$. 

\[ x = 1 - y^2 \quad \text{and} \quad x = y^2 - 1 \]