Change of Variables Day 2

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Change of Variables Practice Problems

1. Use the change of variables $x = u^2 - v^2$, $y = 2uv$ to evaluate $\iint_{\mathcal{D}} y \, dA$ where $\mathcal{D}$ is the region above the x axis and bounded by the parabolas $y^2 = 4 - 4x$ and $y^2 = 4 + 4x$.

Challenge Problems

1. Evaluate $\iint_{\mathcal{D}} e^{x+y} \, dA$ where $\mathcal{D}$ is the region given $|x| + |y| \leq 1$.

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