IMP 3: Collected HW2 (Due Friday 4/18)

Prove: \[ \int_{\sigma} (f\hat{i}) \cdot \hat{n} \, dS = \int \int \int_{G} \frac{\partial f}{\partial x} \, dV, \]
where \( G \) is a simple \( yz \)-solid and \( \sigma \) is the boundary surface of \( G \) oriented outward.

Hint: Describe \( G \) as \( g_1(y, z) \leq x \leq g_2(y, z); \) \( (y, z) \) in \( R \).