

Compute the surface integral $\iint_S \vec{F} \cdot d\vec{S}$, where $\vec{F}(x, y, z) = (x, 0, 0)$ and S consists of the six faces of the cube $\{(x, y, z) : -1 \leq x, y, z \leq 1\}$. What does the Divergence theorem tell you the answer should be?