Problems: Divergence Theorem

Let $S_1$ be the part of the paraboloid $z = 1 - x^2 - y^2$ which is above the $xy$-plane and $S_2$ be the unit disk in the $xy$-plane. Use the divergence theorem to find the flux of $\mathbf{F}$ upward through $S_1$, where $\mathbf{F} = (yz, xz, xy)$. 