
Show all work. 10 points.

1. Use the divergence Theorem to evaluate $\iint_S \mathbf{F} \cdot d\mathbf{S}$ where $\mathbf{F}(x, y, z) = \langle xye^z, 4xy^2z, -ye^z \rangle$ and S is the surface of the box bounded by the coordinate planes and the planes $x = y = z = 2$.