Q1) In the following, use the Divergence Theorem to write the given surface integral as a triple integral over region \( D \), showing correct integral limits. Then evaluate the RHS you obtain.

\[
\iiint \mathbf{F} \cdot d\mathbf{S} = \iiint (2x\mathbf{i} + 4xe^z\mathbf{j} + 3z\mathbf{k}) \cdot n\,dS
\]

where \( D \) is the region bounded by \( 2x + y + z = 6 \) and the coordinate planes.