Math 3298 Worksheet 35: Stokes’ Theorem

\[
\int \int_S (\nabla \times \vec{F}) \cdot \vec{n} \ dS = \oint_{\partial S} \vec{F} \cdot d\vec{r}
\]

Group members (2 to 4): 

(1) Compute the flux of the curl of the vector field

\[
\vec{F} = (xyz - xy - yz, -x^2z + y^2z + x^2 + xz, z)
\]

through the surface \( z = x^2 + y^2, z \leq 1 \), with upward pointing normal, using Stokes’ theorem (you can either compute the line integral or choose a different surface with the same boundary).