ME 201 Tutorial #10
Surface Integrals, and Divergence Theorems

1. Find the flux of the vector field $\vec{F} = (3z+1)\hat{k}$ through the closed surface bounded on top by the hemisphere $x^2 + y^2 + z^2 = a^2$ and on the bottom by the plane $z = 0$. You will solve this problem using two different methods:

    a. Perform the surface integral of the vector function over the closed surface

    b. Evaluate the flux using Divergence Theorem