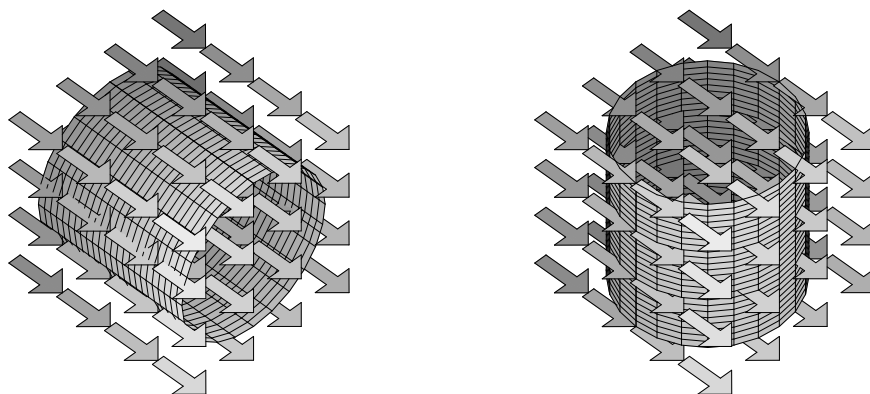


1. Flux

- (a) What do you think will be the flux through the cylindrical surface that is placed as shown in the constant vector field in the figure on the left?
- (b) What if the cylinder is placed upright, as shown in the figure on the right? Explain.



2. Find the flux of $\vec{F} = z^2 \hat{k}$ through the upper hemisphere of the sphere $x^2 + y^2 + z^2 = 25$, oriented away from the origin.