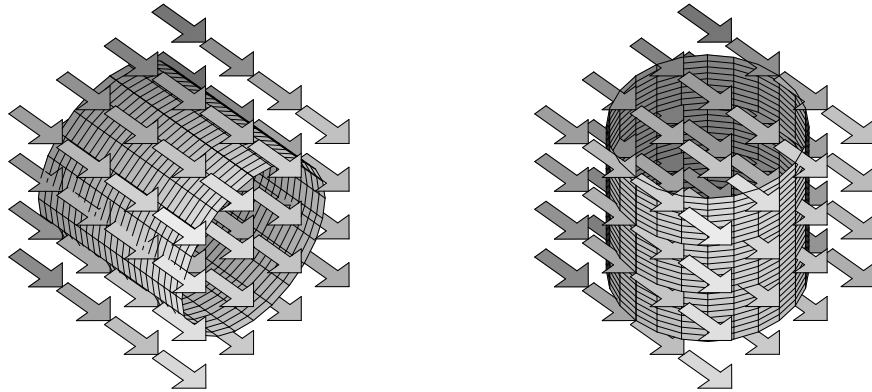1. Flux

(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 $\vec{F} = x\,\hat{\boldsymbol{x}} + y\,\hat{\boldsymbol{y}} + z\,\hat{\boldsymbol{z}}$ out of a closed cylinder of radius 2 centered on the y-axis, with $-3 \leq y \leq 3$.