

Special Problem 2-5.6

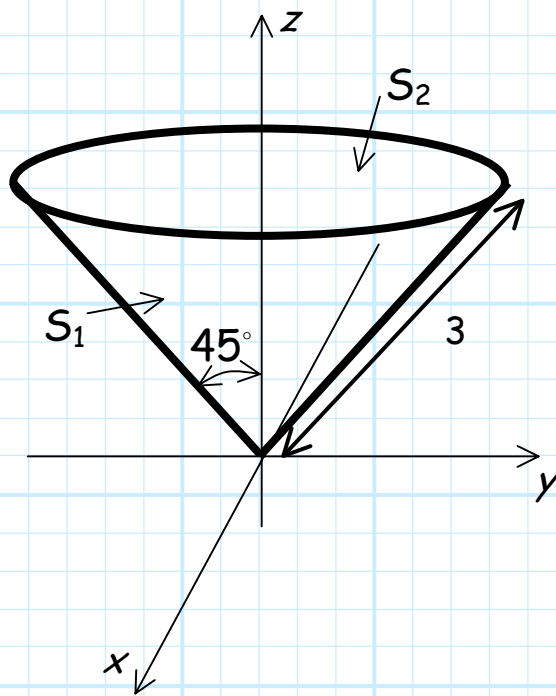
Evaluate the **surface** integral:

$$\iint_S \mathbf{A}(\bar{\mathbf{r}}) \cdot \overline{d\mathbf{s}}$$

where:

$$\mathbf{A}(\bar{\mathbf{r}}) = (\rho^2 + z^2) \hat{\mathbf{a}}_\rho + \rho \hat{\mathbf{a}}_\phi$$

and $S = S_1 + S_2$ where:



In other words, S_1 is a 45 degree **cone**, and S_2 is the **flat** surface that forms the top of the cone.