

Special Problem 2-5.2

A 45° cone is aligned with the z -axis, with its point located at the origin. The distance from the point to the edge of the cone is 2 units.

Determine the surface integral:

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

where:

$$\mathbf{A}(\bar{\mathbf{r}}) = -z^2 \hat{\mathbf{a}}_z$$

and S denotes the surface of the cone (the side but not the top).

