Special Problem 5-3.3

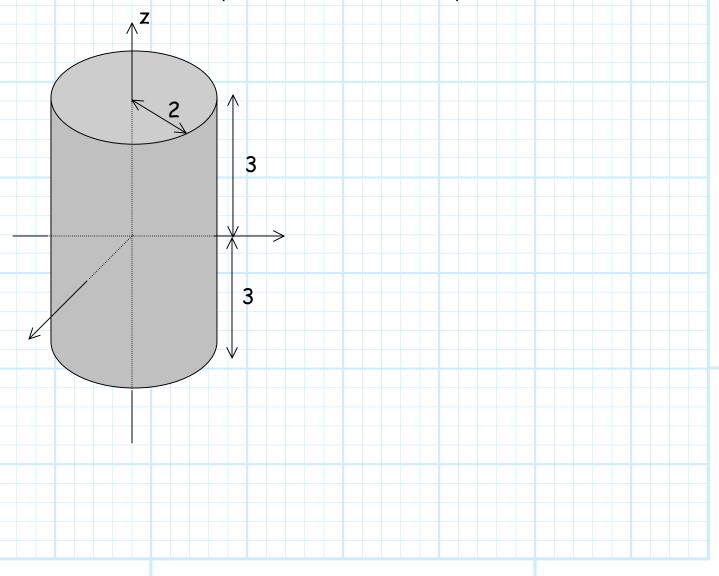
An electric flux density described as:

$$D(\overline{r}) = \frac{\rho \, \hat{a}_{\rho} + z \, \hat{a}_{z}}{12} \quad \left[\frac{C}{m^{2}} \right]$$

exists in all space.

Determine then the (free) charge enclosed in a cylinder of radius 2 m and length 6 m. This cylinder is centered at the origin and aligned with the z-axis.

Recall the surface of cylinder has three areas (top, bottom and side).



Jim Stiles The Univ. of Kansas Dept. of EECS