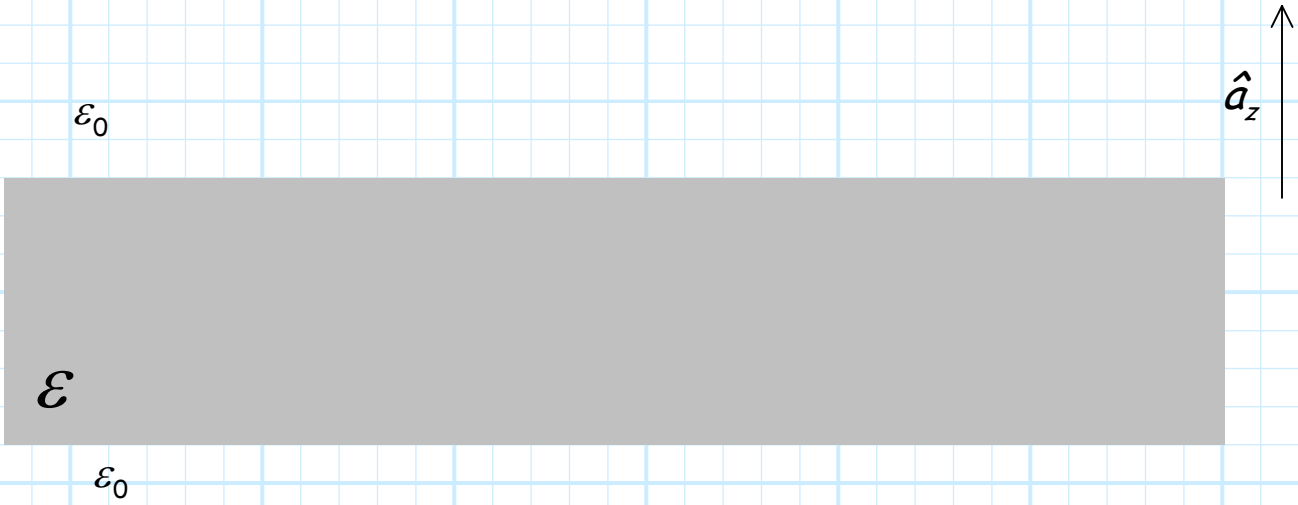
Special Problem 5-3.1

Consider the dielectric slab shown below:



The electric field within the slab is:

$$\mathbf{E}(\bar{r}) = \frac{2}{\varepsilon_0}\,\hat{a}_z$$

and the susceptibility of the dielectric is 2.0

a) Find the permittivity and relative permittivity of the dielectric.

b) Find the electric flux density within the slab.

c) Find the polarization vector within the slab.

d) Find the volume bound charge density within the slab

e) Find the surface bound charge density at the top and bottom of the slab.