

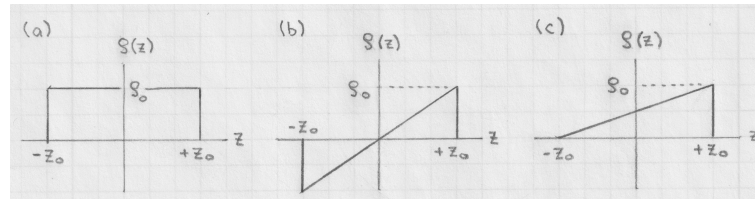
[lex189] Electric field of planar charge distributions

Consider planar charge distributions with three different profiles of $\rho(z)$ as shown.

(i) Use Gauss's law to determine the component E_z of the electric field at positions $z = \pm z_0$ in each case.

(ii) Use the fact that uniformly charged plane sheets generate uniform electric fields on both sides to calculate E_z at $z = \pm z_0$ and $z = 0$ from an integral expression constructed for that purpose.

Hint: Both techniques are described in [lln5].



Solution: