I Practice Problems: Gauss Law

Problem 1: There is coaxial cable (two cables which share the same axis see Fig. 1) with surface charge $-\sigma$ and $+\rho$ respectively. (Note that this geometry was constructed such that $\rho = -\frac{2\sigma b}{a^2}$) Determine the electric field:

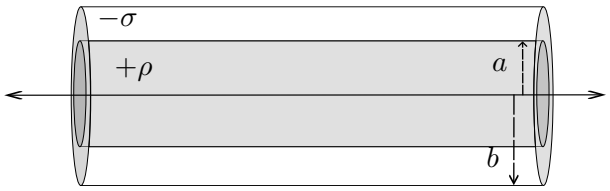

Figure 1: Coaxial cable.

(i) When $r < a$

(ii) When $b > r > a$

(iii) When $r > b$

Problem 2: There exists a slab with thickness $2d$ and charge density ρ shown in Fig. 2. Determine the electric field:

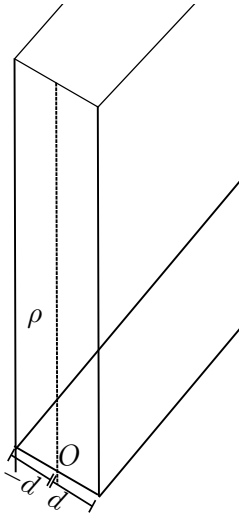

Figure 2: Thick slab with uniform charge density.

(i) When $r = 0$

(ii) When $r < d$

(iii) When $r > d$

What are your major takeaways/things that you want to remember?