

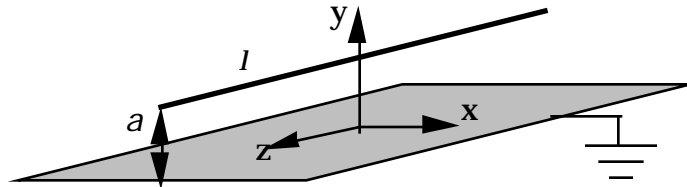
Method of Images

Reading assignment

Paul, Whites, and Nasar, 3.11, 3.12

Problem 1 - wire above conducting plane

A wire with a line charge of ρ_l sits at a height a above a grounded conducting plane.



In order to do this problem, you will need to use the potential of a isolated line charge which is given by $V = (\rho_l/2\epsilon_0) \ln(r_{\text{ref}}/r)$ where r_{ref} is the distance between the line charge and the voltage reference.

- What is the voltage in the problem with a line charge and the conducting plane?
- What is the electric field just above the ground plane?
- What is the charge density on the ground plane?