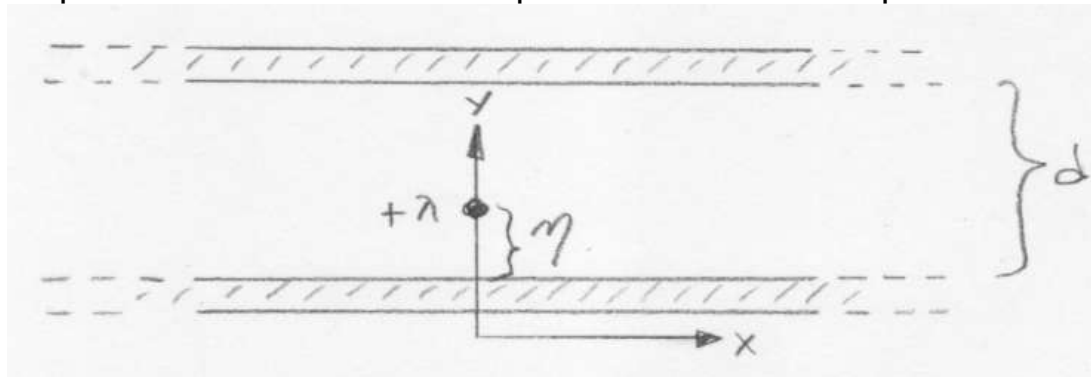# Electrodynamics: Homework Assignment 3. Due October 25 either 11:00am in class or 10:45am in the instructor's mailbox.
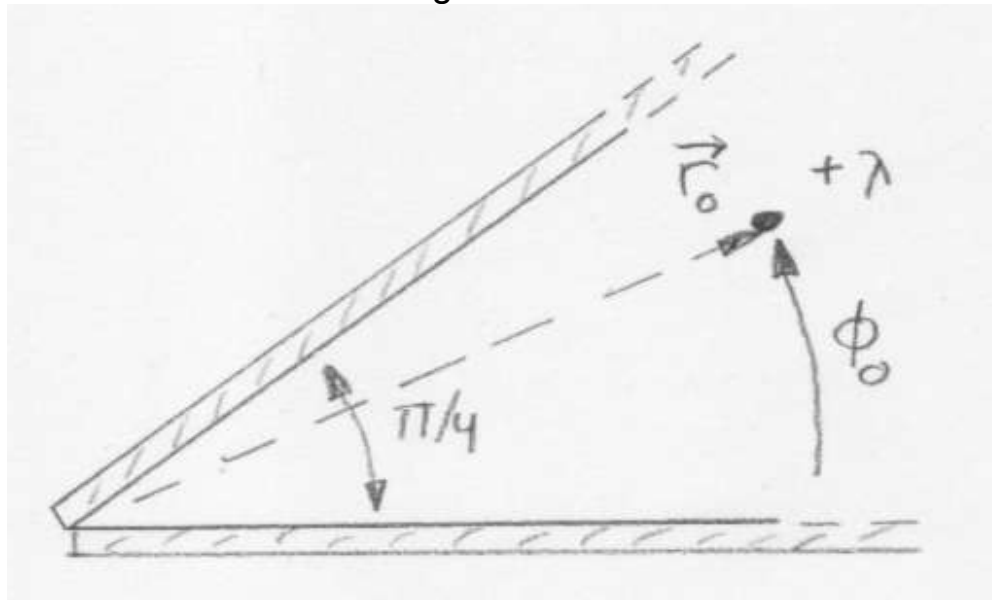
1. Separation of variables in 2D.
The figure shows a pair of parallel grounded plates with a line charge $+\lambda$ parallel the z-axis. Find the potential between the plates.

2. Image charges in 2D.
The figure shows a pair of intersecting grounded plates with a line charge $+\lambda$ parallel to the line of intersection. Make a careful sketch of the image charges for the potential in the volume between the plates that contains the line charge.

3. Separation of variables in 2D. A volume is bounded by conducting surfaces at $\rho = \rho_1$ and ρ_2, and $\phi = \phi_1$ and ϕ_2. All surfaces are at zero potential except the surface at $\phi = \phi_2$ is at potential Φ_0. Find the potential inside.