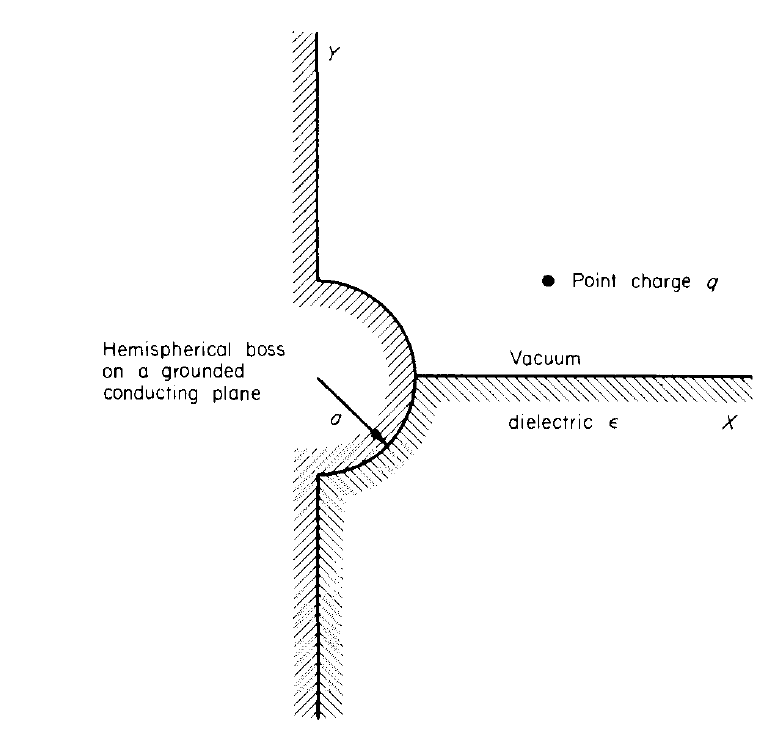
Classical Electrodynamics (Physics course 503)

Problem set #7

Due date: 6pm, May 1 (Tue), 2018

Submission: HW box in physics building.

***1.*** What collection of image charges solves the problem pictured in Fig. 16.5?

Fig. 16.5.

***2.*** A circular cylinder of dielectric is placed in a uniform electric filed, the axis of the cylinder being perpendicular to the field. Find the potential everywhere.

***3.*** A conducting sphere of radius a carries charge q. The dielectric constant outside the sphere varies with the radial distance from the center of the sphere according to

1. Find the potential in the region outside the sphere.
2. What will the polarization surface charge density on the dielectric surface at r=a be?

***4.*** Jackson 4.1

***5.*** Jackson 4.6