Classical Electrodynamics (Physics course 503)

Problem set #5

Due date: 6pm, Apr 3 (Tue), 2018

Submission: HW box in physics building.

***1.*** Jackson 2.11

***2.*** Jackson 2.13

***3.*** Find the field and the surface charge density in the example of a line charge q/l at (2c,2c) bounded by a conducting surface at zero potential given in the first quadrant by .

***4.*** A horizontal half-plate at zero potential has its edge parallel to and at a distance c from an infinite vertical plane at potential /2. Find the charge densities on both planes. Suggestion: study w defined implicitly by

***5.*** Find the complex potential due to a line of charge per unit length q/l at x=0, y=a and another –q/l at w=0, y=-a. Prove that the equipotentials are circular cylinders.