EE 735
Practice Problems

7^{th} Aug 2019

Note: Practice problems are not graded. They are just for familiarizing you with FDM

(a) Assume two metal plates A and B are kept at a separation of 100 μm in free space. Plate A is grounded (at x=0) and while plate B is held at a potential of 1V (at x=100 μm). Find the potential profile from Plate A to Plate B.

(b) For the same configuration as above, assume both plates are grounded, and a charge sheet of zero thickness but with charge of $-10^{-6}\ \mathrm{C/cm^2}$ is placed at a distance of 30 μm from plate A towards plate B. Find the potential profile from Plate A to Plate B.

(c) Assuming the conditions in case (a), assume that the region between A and B has a charge density of $\mathrm{q} \times 10^{16}\ \mathrm{cm^{-3}}$, where q is the electronic charge. Find the potential profile between the plates A and B.