

Physics 5B (Spring 2023): Homework #4

Please submit on online before 6:00 pm on Monday, February 20, 2022.

Properties of conductors

Exercise 3.33 Two point charges and two concentric hollow conductors. Sketch the field lines and surface charges.

Exercise 3.34 Sketch the equipotential surfaces for point charge near a conducting sphere. You also want to think about the charge distribution on the surface of the sphere as a hint to the last part of the problem.

Exercise 3.37 Charges induced by a point charge between conducting plates. Another exercise in Gauss Law and superposition.

Method of images problems

Exercise 3.38 Two opposite charges above a plane, one is fixed.

Exercise 3.39 A wire above the Earth. Superposition plus method of images.

Exercise 3.42 Method of images charges at a corner for different angles of the corner.