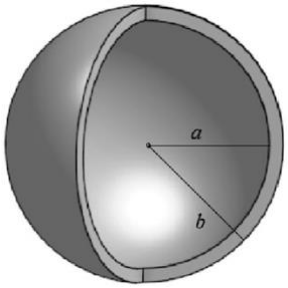
BIRZEIT UNIVERSITY
Faculty of Science كلية العلوم
Department of Physics دائرة الفيزياء

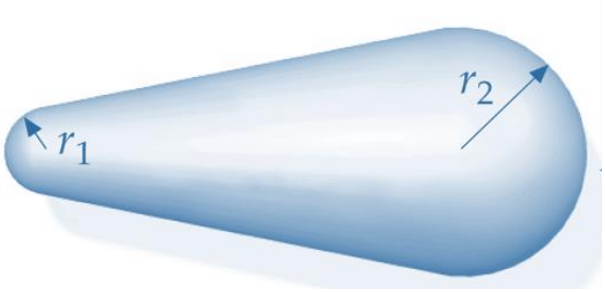
Phys331/Homework #2

Due on Monday 25/4/2022

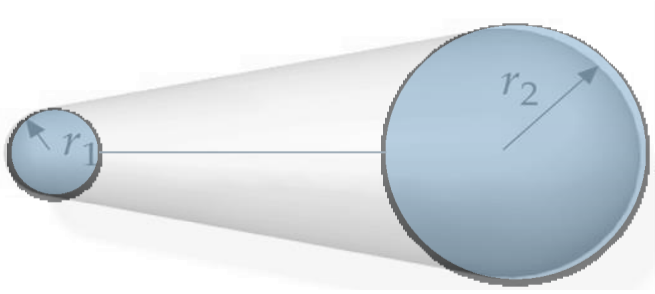
1) Find the potential everywhere for a spherical shell of inner radius a and outer radius b with a uniform volume charge density $\rho_0 = \frac{3q}{4\pi(b^3-a^3)}$.



2) Compute Compare the field strength at the two ends of a lightning-rod



Using the simplified model of two conducting spheres connected by a wire



3) A charge q_1 is located at the point $(1, 0, 0)$. What charge q_2 should be placed at the point $(\sqrt{3}, 0, 0)$ so that the flux be zero across the unit circle that lies in the yz-plane and centered at the origin?