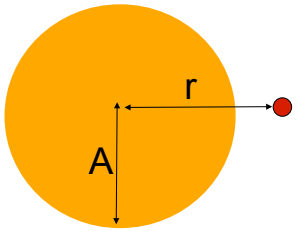
Physics 3323
Quiz 1
September 9, 2016

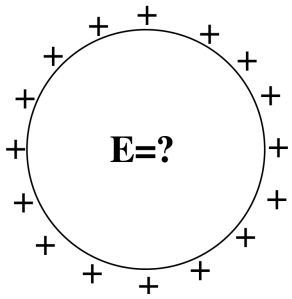
1. Suppose we have two infinitely long charged rods in the xy plane, and parallel to the x-axis. One rod, at $y = +a$, is positively charged (uniform charge density λ) and the other rod at $y = -a$ is negatively charged (uniform charge density $-\lambda$). Calculate the magnitude and direction of the electric field along the z-axis.

2. A point charge $+q$ sits outside a solid neutral conducting copper sphere of radius A. The charge q is a distance $r > A$ from the center, on the right side. What is the E-field at the center of the sphere? (Assume equilibrium situation).



A) $|E| = kq/r2$, to left
B) $kq/r2 > |E| > 0$, to left
C) $|E| > 0$, to right
D) $E = 0$
E) None of these

3. A spherical shell has a uniform positive charge density on its surface. (There are no other charges around) What is the electric field inside the sphere?



A) $E = 0$ everywhere inside
B) E is non-zero everywhere in the sphere
C) $E = 0$ only at the very center, but non-zero elsewhere inside the sphere.
D) Not enough info given