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 $\lambda$) 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).

\[
|E| = kq/r^2, \text{ to left}
\]

A) $|E| = kq/r^2$, to left
B) $kq/r^2 > |E| > 0$, 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