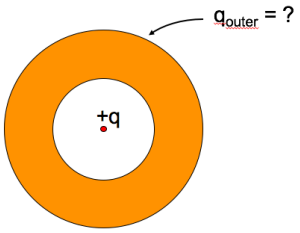
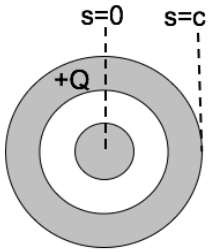
A neutral copper sphere has a spherical hollow in the center. A charge $+q$ is placed in the center of the hollow. What is the total charge on the outside surface of the copper sphere? (Assume Electrostatic equilibrium.)



A. Zero
B. $-q$
C. $+q$
D. $0 < q_{outer} < +q$
E. $-q < q_{outer} < 0$

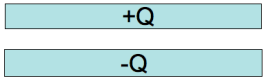
A long coax has total charge $+Q$ on the OUTER conductor. The INNER conductor is neutral.



What is the sign of the potential difference, $\Delta V = V(c) - V(0)$, between the center of the inner conductor ($s = 0$) and the outside of the outer conductor?

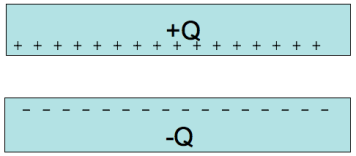
A. Positive
B. Negative
C. Zero

Given a pair of very large, flat, conducting capacitor plates with total charges $+Q$ and $-Q$. Ignoring edges, what is the equilibrium distribution of the charge?



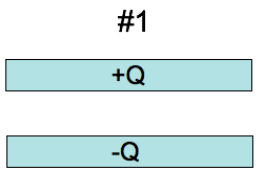
A. Throughout each plate
B. Uniformly on both side of each plate
C. Uniformly on top of $+Q$ plate and bottom of $-Q$ plate
D. Uniformly on bottom of $+Q$ plate and top of $-Q$ plate
E. Something else

Given a pair of very large, flat, conducting capacitor plates with surface charge densities $+/-\sigma$, what is the E field in the region between the plates?

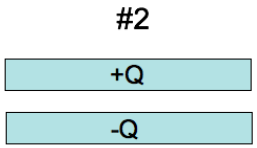


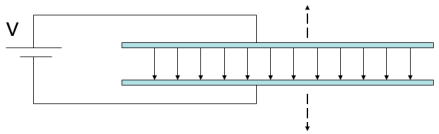
A. $\sigma/2\varepsilon_0$
B. σ/ε_0
C. $2\sigma/\varepsilon_0$
D. $4\sigma/\varepsilon_0$
E. Something else

You have two very large parallel plate capacitors, both with the same area and the same charge Q. Capacitor #1 has twice the gap of Capacitor #2. Which has more stored potential energy?



A. #1 has twice the stored energy
B. #1 has more than twice
C. They both have the same
D. #2 has twice the stored energy
E. #2 has more than twice.





A parallel plate capacitor is attached to a battery which maintains a constant voltage difference V between the capacitor plates. While the battery is attached, the plates are pulled apart. The electrostatic energy stored in the capacitor

A. increases.
B. decreases.
C. stays constant.