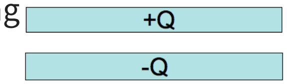
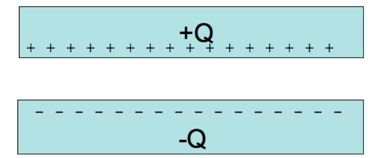
Given a pair of very large, flat, conducting capacitor plates with total charges $+Q$ and $-Q$. Ignoring edges, what is the equilibrium distribution of the charge?



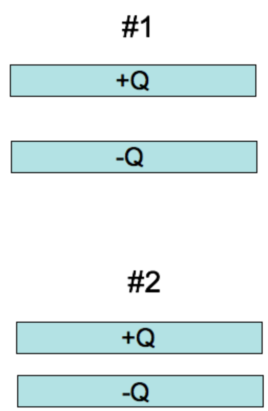
A. Throughout each plate
B. Uniformly on both side of each plate
C. Uniformly on top of $+Q$ plate and bottom of $-Q$ plate
D. Uniformly on bottom of $+Q$ plate and top of $-Q$ plate
E. Something else

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?

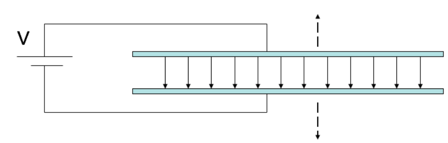


A. $\sigma/2\varepsilon_0$
B. σ/ε_0
C. $2\sigma/\varepsilon_0$
D. $4\sigma/\varepsilon_0$
E. Something else

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?



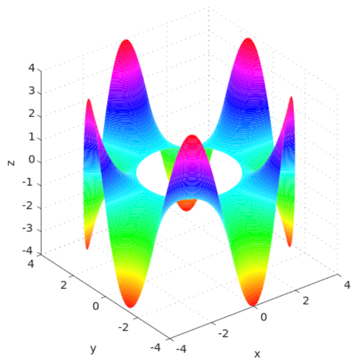
A. #1 has twice the stored energy
B. #1 has more than twice
C. They both have the same
D. #2 has twice the stored energy
E. #2 has more than twice.

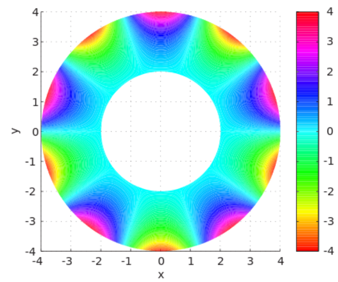


A parallel plate capacitor is attached to a battery which maintains a constant voltage difference V between the capacitor plates. While the battery is attached, the plates are pulled apart. The electrostatic energy stored in the capacitor

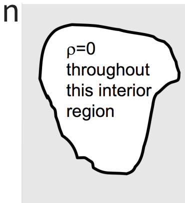
A. increases.
B. decreases.
C. stays constant.

LAPLACE'S EQUATION



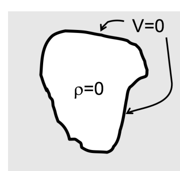


A region of space contains no charges. What can I say about V in the interior?

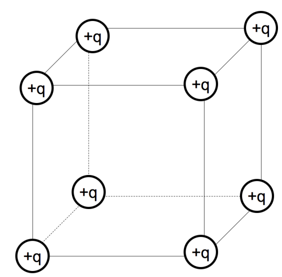


A. Not much, there are lots of possibilities for V(r) in there
B. V(r)=0 everywhere in the interior.
C. V(r)=constant everywhere in the interior

A region of space contains no charges. The boundary has V=0 everywhere. What can I say about V in the interior?



A. Not much, there are lots of possibilities for V(r) in there
B. V(r)=0 everywhere in the interior.
C. V(r)=constant everywhere in the interior



If you put a positive test charge at the center of this cube of charges, could it be in stable equilibrium?

A. Yes
B. No
C. ???