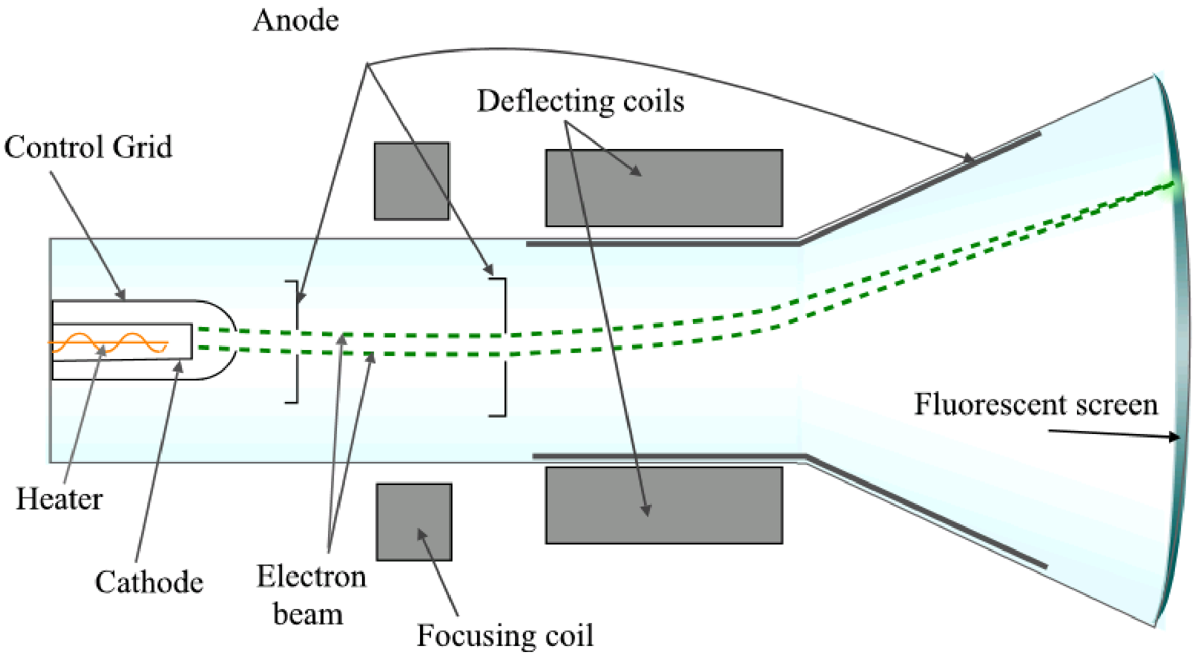
We usually choose $V(r \to \infty) \equiv 0$ when calculating the potential of a point charge to be $V(r) = +kq/r$. How does the potential $V(r)$ change if we choose our reference point to be $V(R) = 0$ where R is close to $+q$.

A. $V(r)$ higher than it was before
B. $V(r)$ is lower than it was before
C. $V(r)$ doesn't change (V is independent of choice of reference)

ELECTROSTATIC POTENTIAL ENERGY



Consider slowly moving a positive charge from a location of low electric potential to one of high electric potential. What is the sign of the work done by you (W_u)? What is the sign of the work done by electric field (W_f)?

A. $W_u < 0; W_f > 0$
B. $W_u < 0; W_f < 0$
C. $W_u > 0; W_f > 0$
D. $W_u > 0; W_f < 0$

Three identical charges $+q$ sit on an equilateral triangle. What would be the final KE of the top charge if you released it (keeping the other two fixed)?

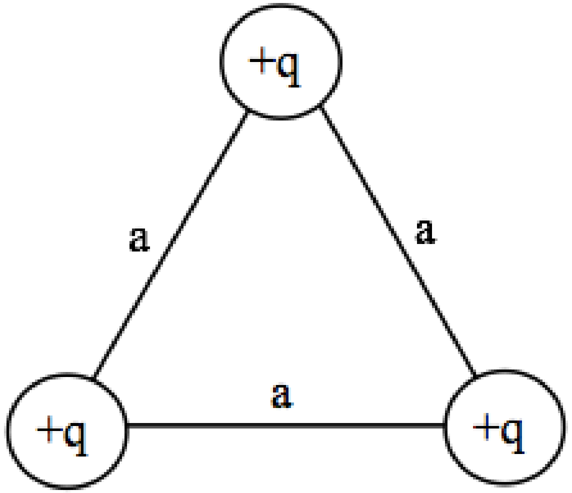
A. $\frac{1}{4\pi\varepsilon_0}\frac{q^2}{a}$

B. $\frac{1}{4\pi\varepsilon_0}\frac{2q^2}{3a}$

C. $\frac{1}{4\pi\varepsilon_0}\frac{2q^2}{a}$

D. $\frac{1}{4\pi\varepsilon_0}\frac{3q^2}{a}$

E. Other



Three identical charges $+q$ sit on an equilateral triangle. What would be the final KE of the top charge if you released *all three*?

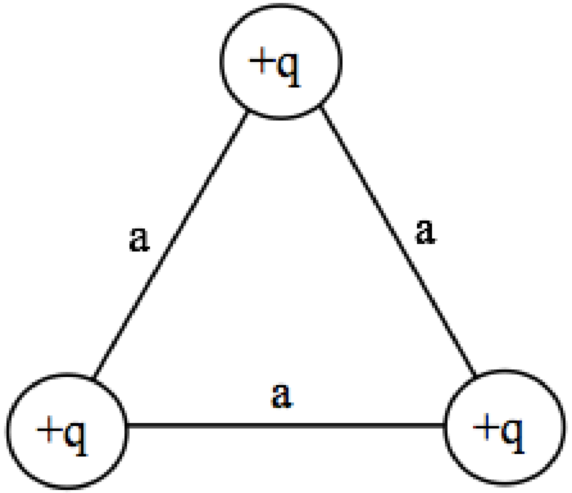
A. $\frac{1}{4\pi\varepsilon_0}\frac{q^2}{a}$

B. $\frac{1}{4\pi\varepsilon_0}\frac{2q^2}{3a}$

C. $\frac{1}{4\pi\varepsilon_0}\frac{2q^2}{a}$

D. $\frac{1}{4\pi\varepsilon_0}\frac{3q^2}{a}$

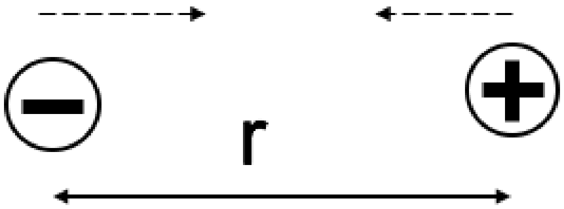
E. Other



Does system energy "superpose"?

That is, if you have one system of charges with total stored energy W_1, and a second charge distribution with W_2...if you superpose these charge distributions, is the total energy of the new system simply $W_1 + W_2$?

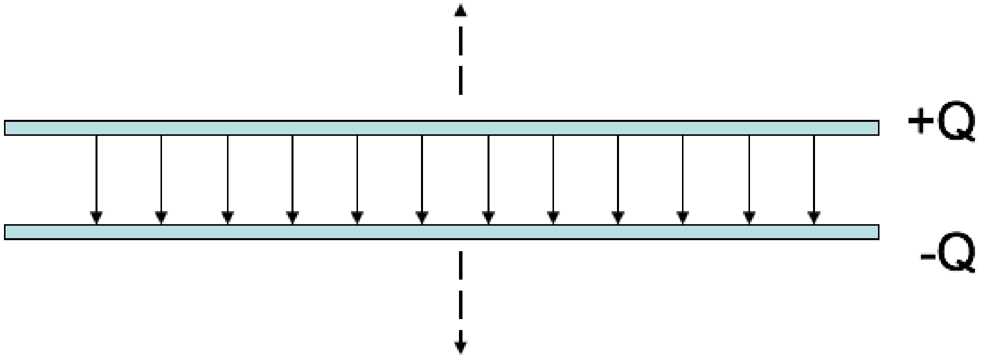
A. Yes
B. No



Two charges, $+q$ and $-q$, are a distance r apart. As the charges are slowly moved together, the total field energy

$$\frac{\varepsilon_0}{2}\int E^2 d\tau$$

A. increases
B. decreases
C. remains constant



A parallel-plate capacitor has $+Q$ on one plate, $-Q$ on the other. The plates are isolated so the charge Q cannot change. As the plates are pulled apart, the total electrostatic energy stored in the capacitor:

A. increases
B. decreases
C. remains constant.