The potential is zero at some point in space.

You can conclude that:

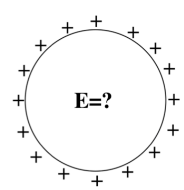
A. The E-field is zero at that point
B. The E-field is non-zero at that point
C. You can conclude nothing at all about the E-field at that point

The potential is constant everywhere along a line in space.

You can conclude that:

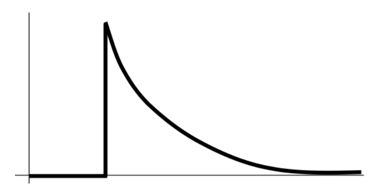
A. The E-field has a constant magnitude along the line.
B. The E-field is zero along that line.
C. You can conclude nothing at all about the magnitude of $\mathbf{E}$ along that line.

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. $\mathbf{E} = 0$ everywhere inside
B. $\mathbf{E}$ is non-zero everywhere in the sphere
C. $\mathbf{E} = 0$ only that the very center, but non-zero elsewhere inside the sphere.
D. Not enough information given



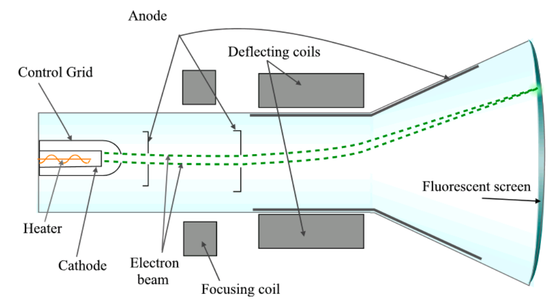
Could this be a plot of $|\mathbf{E}(r)|$? Or $V(r)$? (for SOME physical situation?)

A. Could be $E(r)$, or $V(r)$
B. Could be $E(r)$, but can't be $V(r)$
C. Can't be $E(r)$, could be $V(r)$
D. Can't be either
E. ???

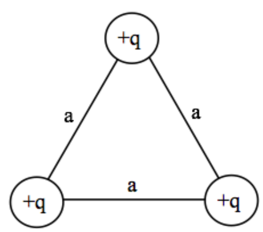
We usually choose $V(r \to \infty) \equiv 0$ when calculating the potential of a point charge to be $V(r) = +kq/r$. How does the potential $V(r)$ change if we choose our reference point to be $V(R) = 0$ where R is close to $+q$.

A. $V(r)$ is positive but smaller than kq/r
B. $V(r)$ is positive but larger than kq/r
C. $V(r)$ is negative
D. $V(r)$ doesn't change (V is independent of choice of reference)

ELECTROSTATIC POTENTIAL ENERGY

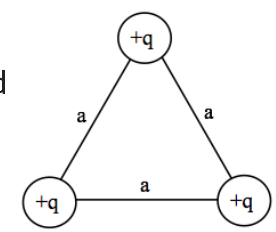


Three identical charges $+q$ sit on an equilateral triangle. What would be the final KE of the top charge if you released it (keeping the other two fixed)?

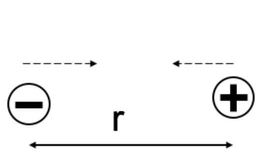


A. $\frac{1}{4\pi\varepsilon_0}\frac{q^2}{a}$
B. $\frac{1}{4\pi\varepsilon_0}\frac{2q^2}{3a}$
C. $\frac{1}{4\pi\varepsilon_0}\frac{2q^2}{a}$
D. $\frac{1}{4\pi\varepsilon_0}\frac{3q^2}{a}$
E. Other

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



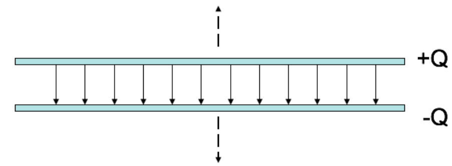
A. $\frac{1}{4\pi\varepsilon_0}\frac{q^2}{a}$
B. $\frac{1}{4\pi\varepsilon_0}\frac{2q^2}{3a}$
C. $\frac{1}{4\pi\varepsilon_0}\frac{2q^2}{a}$
D. $\frac{1}{4\pi\varepsilon_0}\frac{3q^2}{a}$
E. Other



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.