

CONCEPTUAL PROBLEMS, Chapter 25

Phys 2401, Dr. Huang

Fill in a **T/F** answer for each statement below:

1. [] The electrostatic potential difference between point A and B , ΔV_{AB} , can be calculated using a path integral, and ΔV_{AB} does not depend on the integral path used.
2. [] A common reference point for electrostatic potential is $V = 0$ at ∞ .
3. [] The magnitude of work required to bring a charge q from point A to point B is $|qV_{BA}|$.
4. [] eV is a unit of potential.
5. [] When a charged particle is accelerated from rest in an electric field, the amount of kinetic energy increased equals the amount of potential energy decreased, i.e., $\left| \frac{1}{2} mv^2 \right| = |q\Delta V|$
6. [] An electric field line points to the direction of higher electric potential.
7. [] An equipotential surface is always parallel to electric field lines.
8. [] The electrostatic potential generated by multiple charges, is the vector addition of the potentials generated by each individual charge.
9. [] Inside a conductor, the electric field and potential are both zero.
10. [] The electric fields created by a point charge, a conducting sphere, and insulator sphere are identical, if they all have the same amount of charge and the field is measured outside the spheres.