

Chapter 25 Electric Potential (Lecture Examples)

- Ex: 1 Calculate the electric potential energy is required of three point charges (Q , $-2Q$, and $-3Q$) located at the corners the corners of an equilateral triangle that is length, L , on a side? (Assume they are moved from infinity and that they start from rest and end at rest.)
- Ex: 2 Calculate the potential a distance, R , from a point charge, Q .
- Ex: 3 Calculate the electric potential of a dipole a distance, x , from the midpoint between the charges along the axis of the dipole and along the perpendicular bisector. (Assume $x > a$)
- Ex: 4 A line segment of length, L , lies on the positive x -axis with one end at the origin. Its charge density is λ . Calculate the electric potential at the point, $(0, b)$.
- Ex: 5 Calculate the potential a distance, R , from the center of a conducting sphere with charge density, σ , and radius, a .
- Ex: 6 Calculate the potential a distance, R , from the center of a non-conducting sphere with a uniform charge density, a total charge, Q and a radius, a .
- Ex: 7 A disk has a radius, a , and is charged on the front surface only. The surface charge density is σ . Calculate the electric potential a distance, h , from the center of the disk's front surface in terms of h , a and σ . The point in question is on the axis of the disk.
- Ex: 8 Calculate the ratio of the surface charge densities of two conducting spheres with radii, R_1 and R_2 . A very long conducting wire connects the spheres.