

Unit-3 Home Assignment-1

1. Calculate the Divergence of the Electric field (E) of a point charge +Q.
2. What is the volume integral of the divergence E of a closed volume V enclosed by a closed spherical surface S, $[\iiint (\nabla \cdot E) dV]$?

Consider a spherical symmetry of radius r where the charge is situated at the origin (Centre).

3. What is the surface integral $\oiint E \cdot ds$ of the above system?
4. Does it obey the Gauss-divergence formula?