

Special Problem 5-4.5

A hollow conducting sphere of **radius 2 m** is centered at the origin. Every point on this sphere has an **electric scalar potential of 6.0 V**.

Another hollow conducting sphere of **radius 1 m** is also centered at the origin. Every point on this sphere has an **electric scalar potential of 1.0 V**.

The region between the spheres (i.e., $1.0 < r < 2.0$) is filled with **free charge**, with a density of:

$$\rho_v(r) = \frac{-2\epsilon_0}{r} \quad \left[\frac{C}{m^3} \right]$$

Determine the **electric potential function $V(r)$** in the region between the spheres.

