

Special Problem 4-5.4

Determine the **electric field** in free-space created by the charge density:

$$\rho_v(\vec{r}) = \begin{cases} \frac{9\epsilon_0}{\rho} & \rho < 1\text{ m} \\ 0 & 1\text{ m} \leq \rho \leq 2\text{ m} \\ 3\epsilon_0 \rho & \rho > 2\text{ m} \end{cases} \quad \left[\frac{\text{C}}{\text{m}^3} \right]$$