

Special Problem 4-5.2

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

$$\rho_v(\vec{r}) = \begin{cases} 0 & r < 1\text{ m} \\ \frac{2\varepsilon_0}{r} & 1\text{ m} < r < 2\text{ m} \\ 0 & r > 2\text{ m} \end{cases} \quad \left[\frac{\text{C}}{\text{m}^2} \right]$$

Make sure your answer defines **$\mathbf{E}(\vec{r})$** **everywhere!**