

30. From Eq. 22-26

$$E = \frac{\sigma}{2\epsilon_0} \left( 1 - \frac{z}{\sqrt{z^2 + R^2}} \right) = \frac{5.3 \times 10^{-6} \text{ C/m}^2}{2 \left( 8.85 \times 10^{-12} \frac{\text{C}^2}{\text{N} \cdot \text{m}^2} \right)} \left[ 1 - \frac{12 \text{ cm}}{\sqrt{(12 \text{ cm})^2 + (2.5 \text{ cm})^2}} \right] = 6.3 \times 10^3 \text{ N/C.}$$