

32. We use the result of part (c) of problem 30 to obtain the surface charge density.

$$E = \sigma/\varepsilon_0 \implies \sigma = \varepsilon_0 E = \left(8.85 \times 10^{-12} \frac{\text{C}^2}{\text{N} \cdot \text{m}^2}\right) (55 \text{ N/C}) = 4.9 \times 10^{-10} \text{ C/m}^2 .$$