59. (a) The cube is totally within the spherical volume, so the charge enclosed is $\rho V_{\text{cube}} = (500 \times 10^{-9})(0.040)^3 = 3.2 \times 10^{-11}$ C. By Gauss' law, we find $\Phi = q_{\text{enc}}/\varepsilon_0 = 3.6$ N·m^2/C.

(b) Now the sphere is totally contained within the cube (note that the radius of the sphere is less than half the side-length of the cube). Thus, the total charge is $q_{\text{enc}}\rho V_{\text{sphere}} = 4.5 \times 10^{-10}$ C. By Gauss' law, we find $\Phi = q_{\text{enc}}/\varepsilon_0 = 51$ N·m^2/C.