

57. (a) Outside the sphere, we use Eq. 24-15 and obtain

$$\vec{E} = \frac{1}{4\pi\epsilon_0} \frac{q}{r^2} = 1.5 \times 10^4 \text{ N/C outward .}$$

(b) With $q = +6.00 \times 10^{-12} \text{ C}$, Eq. 24-20 leads to $\vec{E} = 2.5 \times 10^4 \text{ N/C}$ directed outward.