

Solutions

Each answer shows the steps, then the **result**.

2.1

- $E = k \frac{q}{r^2} = 8.99 \times 10^9 \times \frac{5.0 \times 10^{-6}}{(0.20)^2} = 1.1 \times 10^6 \text{ N C}^{-1}$

2.2

- $F = qE = (2.0 \times 10^{-6})(3000) = 6.0 \times 10^{-3} \text{ N}$

2.3

- radially inward, toward the charge

3.1 B

3.2 B

3.3

(a)

- $E = 8.99 \times 10^9 \times \frac{4.0 \times 10^{-6}}{(0.30)^2} = 4.0 \times 10^5 \text{ N C}^{-1}$

(b)

- $F = qE = (1.0 \times 10^{-6})(4.0 \times 10^5) = 0.40 \text{ N}$, directed toward the $+4.0 \mu\text{C}$ charge (attractive)