

Solutions

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

2.1

- repel

2.2

- it becomes one quarter as large ($1/2^2$)

2.3

- $F = 8.99 \times 10^9 \times \frac{(3.0 \times 10^{-6})^2}{(0.20)^2} = 2.0 \text{ N}$, attractive

3.1 B

3.2 C

- $4.8 \times 10^{-19} / 1.6 \times 10^{-19} = 3$

3.3

(a)

- $F = 8.99 \times 10^9 \times \frac{(5.0 \times 10^{-6})(2.0 \times 10^{-6})}{(0.30)^2} = 1.0 \text{ N}$

(b)

- repulsive (both charges positive)