

Problem 26.2

More of the same:

a.)

$$C = \frac{Q}{V}$$

$$\Rightarrow C = \frac{(10.0 \times 10^{-6} \text{ C})}{(10.0 \text{ V})}$$

$$\Rightarrow C = 1.00 \times 10^{-6} \text{ F} \quad (\text{or } 1 \mu\text{F})$$

b.) The capacitance of a capacitor, which was determined above, is a constant value for a capacitor. Changing the charge on the plates does not change the capacitance, it changes the voltage. As such:

$$C = \frac{Q}{V} \Rightarrow V_C = \frac{Q}{C}$$

$$\begin{aligned} \Rightarrow V_C &= \frac{(100 \times 10^{-6} \text{ C})}{(1.00 \times 10^{-6} \text{ F})} \\ &= 100. \text{ V} \end{aligned}$$