

14. (a) and (b) The original potential difference V_1 across C_1 is

$$V_1 = \frac{C_{\text{eq}}V}{C_1 + C_2} = \frac{(3.16 \mu\text{F})(100 \text{ V})}{10.0 \mu\text{F} + 5.00 \mu\text{F}} = 21.1 \text{ V} .$$

Thus $\Delta V_1 = 100 \text{ V} - 21.1 \text{ V} = 79 \text{ V}$ and $\Delta q_1 = C_1 \Delta V_1 = (10.0 \mu\text{F})(79 \text{ V}) = 7.9 \times 10^{-4} \text{ C}$.