Problem 16.26

A 9 volt battery generates 27 micro-coulombs of charge on the plates of a capacitor.

a.) What is the capacitance?

b.) What charge would you get with a 12 volt battery?

A 9 volt battery generates 27 micro-coulombs of charge on the plates of a capacitor.

a.) What is the capacitance?

$$C = \frac{q_{\text{on one plate}}}{V_{\text{between the plates}}}$$

$$= \frac{27\text{x}10^{-6}\ \text{coulombs}}{9\ \text{volts}}$$

$$= 3\ \mu\text{C}$$

b.) What charge would you get with a 12 volt battery?

$$3\text{x}10^{-6}\ \text{C} = \frac{q_{\text{on one plate}}}{12\ \text{V}}$$

$$\Rightarrow \quad q = 36\text{x}10^{-6}\ \text{coulombs}$$