## **RC Circuit**

 $\tau$  = time constant, amount of time for q to reach 63.2% of  $\varepsilon C$ 

$$q_{\max} = \varepsilon C$$

$$i_{
m max} = rac{arepsilon}{R}$$

$$\tau = RC$$

## Equations $q = Q_0 e^{-t/\tau}$

$$q = Q_0 e^{-t/\tau}$$

$$i = \frac{\varepsilon}{R} e^{-t/\tau}$$

$$i = -\frac{Q_0}{\tau}e^{-t/\tau}$$

$$i = I_0 e^{-t/\tau}$$

$$V = V_0 e^{-t/\tau}$$

Charging 
$$q = \varepsilon C \big(1 - e^{-t/\tau}\big)$$

## Discharging

$$q = \varepsilon C e^{-t/\tau}$$