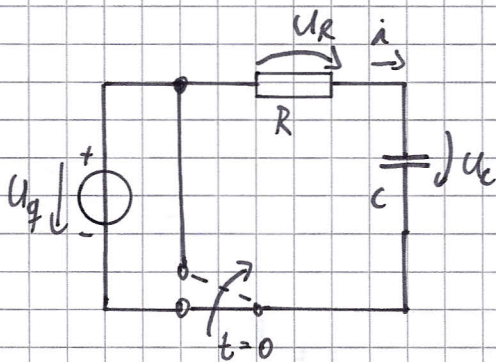


Entladung Kondensator



$$U_C(0) = U_0 = U_q$$

$$i(0) = -\frac{U_0}{R}$$

$$U_R + U_C = 0 \rightarrow U_C = -U_R = iR$$

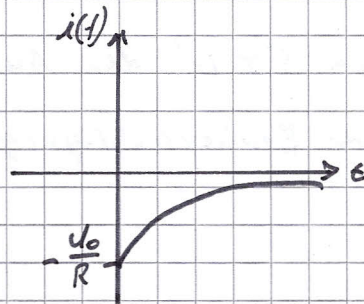
$$i \cdot R + \frac{1}{C} \int i dt = 0 \quad | \frac{d}{dt}$$

$$R \cdot \frac{di}{dt} + \frac{i}{C} = 0 \quad | :R \rightarrow R \cdot C = \tau$$

$$\frac{di}{dt} + \frac{i}{R \cdot C} = \frac{di}{dt} + \frac{i}{\tau} = 0 \rightarrow i(t) = k \cdot e^{-\frac{t}{\tau}}$$

$$i(0) = k \cdot e^{-\frac{0}{\tau}} = k = -\frac{U_0}{R} \rightarrow i(t) = -\frac{U_0}{R} \cdot e^{-\frac{t}{\tau}}$$

$$i(t) = -\frac{U_0}{R} \cdot e^{-\frac{t}{\tau}}$$



$$U_C = -iR = -R \cdot -\frac{U_0}{R} \cdot e^{-\frac{t}{\tau}}$$

$$U_C = U_0 \cdot e^{-\frac{t}{\tau}}$$

