Lösning av diff. ekvation:

$R(\dot{V}(t) + V(t) = q \quad , V(0) = 0$

$\dot{V}(t) + \frac{1}{RC} V(t) = \frac{1}{RC} \cdot q \quad | \cdot e^{\frac{1}{RC} t}$

$\dot{V}(t) \cdot e^{\frac{1}{RC} t} + \frac{1}{RC} e^{\frac{1}{RC} t} V(t) = \frac{1}{RC} e^{\frac{1}{RC} t} \cdot q$

$\int \left(V(t) \cdot e^{\frac{1}{RC} t} \right)' dt = \frac{1}{RC} \cdot q \int e^{\frac{1}{RC} t} \, dt$

$V(t) e^{\frac{1}{RC} t} = \frac{1}{RC} \cdot q, \; RC e^{\frac{1}{RC} t} + C$

$V(t) e^{\frac{1}{RC} t} = q \cdot e^{\frac{1}{RC} t} + C$

$V(t) = q + Ce^{-\frac{1}{RC} t}, \; V(0) = 0 \Rightarrow \quad q + C = 0 \Rightarrow C = -q$

$V(t) = q - qe^{-\frac{1}{RC} t} = \underline{\underline{q(1 - e^{-\frac{1}{RC} t})}}$