$$V_o(t) + Q / C = V_i(t)$$

$$\frac{dV_o(t)}{dt} + i / C = \frac{dV_i(t)}{dt}$$

Use Laplace Transforms to solve for $t \geq 0$

$$L\left[V(t)\right] = V(s),\ L[V'(t)] = sV(s)$$

$$sV_o(s) + V_o(s) / RC = sV_i(s)$$

$$V_o(s) = V_i(s) \times \frac{s}{s + 1/\tau}$$