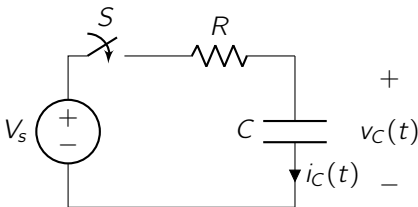


(a) A Simple RC Circuit



Assuming the switch S is closed at $t = 0$, the voltage across the capacitor $v_C(t)$ is given by,

$$v_C(t) = V_s \cdot \left(1 - e^{-\frac{t}{RC}}\right) + v_C(0)e^{-\frac{t}{RC}}, \quad t \geq 0$$

