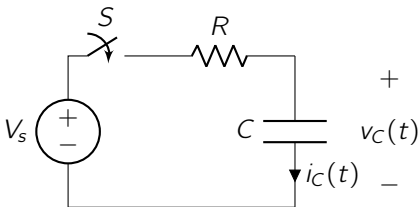


## (a) A Simple RC Circuit



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

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

