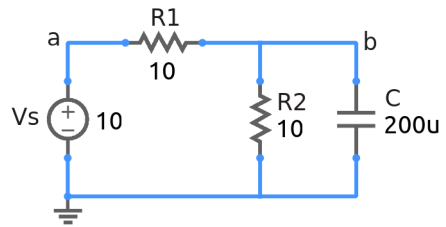# ee101_rc3.sqproj

In the RC circuit shown in the figure, the initial capacitor voltage (at $t=0$) is $0\,\text{V}$.

Exercise Set

1. What is the time constant of the circuit?

2. Obtain expressions for the capacitor voltage and current for $t > 0\,\text{sec}$.

3. Obtain the current through R_2 in two ways: (a) Use $V_C(t)$ obtained in (2). (b) Start with the general form $i_{R1}(t) = A\,\exp(-t/\tau) + B$, find A and B using conditions on i_{R2} at $t = 0^+$ and $t \to \infty$.

4. Plot $V_C(t)$, i_{Vs}, i_C, and $i_{R2}(t)$ for $t > 0\,\text{sec}$.

5. Compare your plots with simulation results.