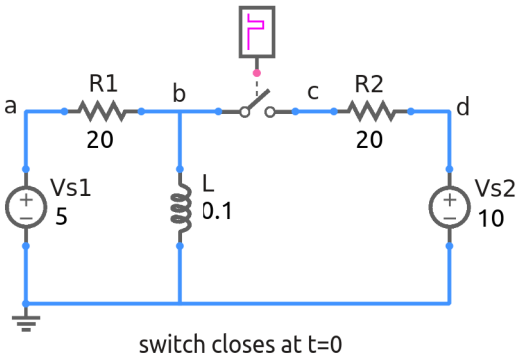
`ee101_rl2.sqproj`



In the RL circuit shown in the figure, the switch has been open for a long time and is closed at $t = 0$.

Exercise Set

1. Find the circuit time constant for $t > 0$.
2. What is the initial current through the inductor $i_L(0^-)$?
3. What is the final current through the inductor $i_L(\infty)$?
4. Obtain an expression for $i_L(t)$ for $t > 0$.
5. Obtain an expression for $i_{R2}(t)$ for $t > 0$.
6. Sketch $i_L(t)$ and $i_{R2}(t)$ for $-20\,\text{ms} < t < 80\,\text{ms}$.
7. Verify your answers with simulation.