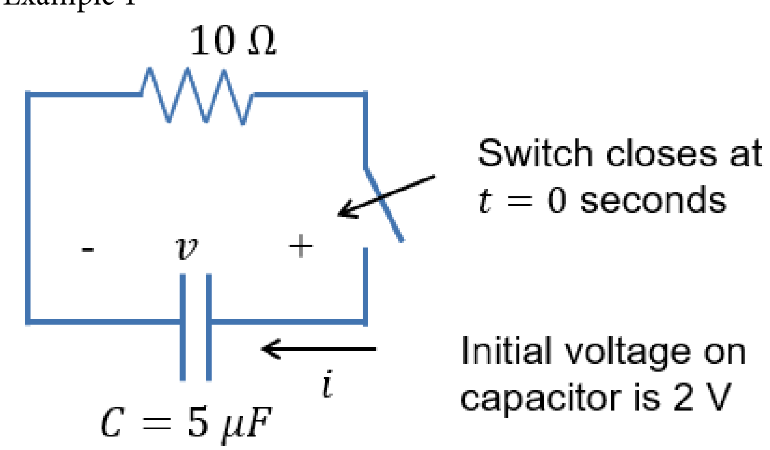
Capacitors	**Inductors**
• Fundamental equation: $i = C\frac{dv}{dt}$, where C is capacitance in Farads • Add in parallel, combine in series the way resistors do in parallel • In steady-state, act like an open circuit • For an instantaneous change, voltage remains the same • Energy stored is Cv^2	• Fundamental equation: $v = L\frac{di}{dt}$, where L is inductance in Henries • Combine in series and parallel the same way as resistors • In steady-state, act like a short circuit • For an instantaneous change, current remains the same • Energy stored is Li^2

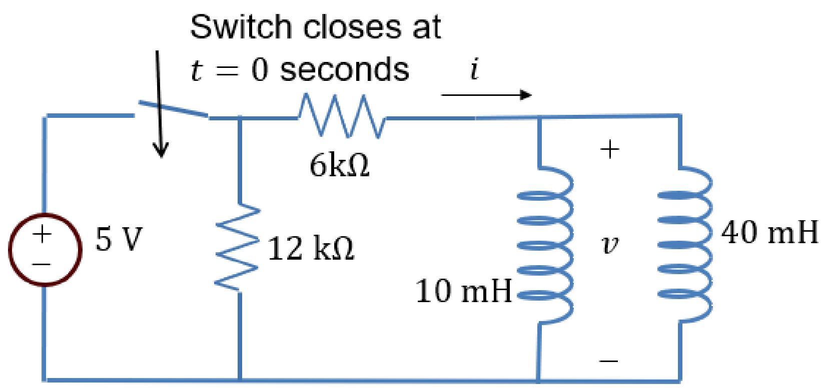
Transient circuit solutions: We are solving for v and i as a function of time, $v(t)$ and $i(t)$.
Write the differential equations using KVL and KCL

For the following examples, solve
(1) Simplified circuit, combining inductors and capacitors as much as possible
(2) Before the switch: steady state v and i, and energy stored in capacitors and inductors.
(3) Instantaneously after the switch: v and i, differential equations describing the circuit.
(4) A long time after the switch: steady-state v and i, and energy stored in the capacitors.

Example 1



Example 2



Example 3: The "switching" action is to add an accidental short circuit between a and b. What's the instant and steady-state current through the short circuit?