02.3 can.exa A sinusoidal input example

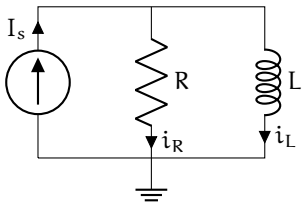
Notice that we have yet to talk about **alternating current (ac) circuit analysis** or **direct current (dc) circuit analysis**. In fact, these ambiguous terms can mean a few different things. Approximately, an ac circuit analysis is one for which the input is sinusoidal and a dc circuit analysis is one for which the input is a constant. This ignores **transient response** (early response when the initial-condition response dominates) versus **steady-state response** (later response when the initial-condition response has decayed) considerations. We'll consider this more in Lec. 02.4 can.trss.

We have remained general enough to be able to handle sinusoidal and constant sources in both transient and steady-state response.

Example 02.2 can.mthd-1 features a circuit with a constant voltage source and a capacitor. Now we consider circuit with a sinusoidal current source and an inductor because why change only one thing when you could change more?

Example 02.3 can.exa-1

Given the RL circuit shown, current input $I_s(t) = A \sin \omega t$, and initial condition $i_L(t)|_{t=0} = i_0$, what are $i_L(t)$ and $v_L(t)$ for $t \geqslant 0$?.



re: RL circuit analysis with a sinusoidal source