

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. can.trss](#).

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

[Example 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?

ac circuit analysis

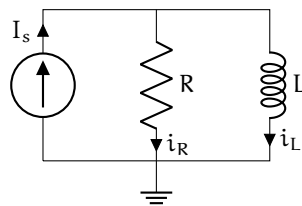
dc circuit analysis

transient response

steady-state response

Example 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 $t \geq 0$?



re: RL circuit analysis with a sinusoidal source



