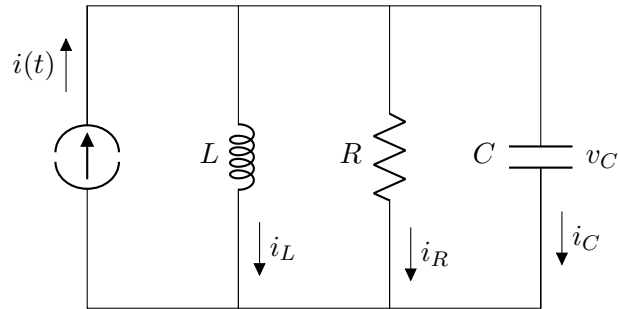


Consider the circuit below.



1. Find a differential equation that represents the state variable v_C by performing KCL at the “top” node. Remember:

- (a) $v_R = i_R \cdot R$
- (b) $i_C = C \frac{dv_C}{dt}$
- (c) $i_L = \frac{1}{L} \int v_L dt$

2. Give the characteristic equation for the differential equation here:

3. Now follow the Matlab file. You are asked to provide various values and answer a couple questions along the way.
4. Answer the last question here. Is it possible to obtain beats if $R = 4$?