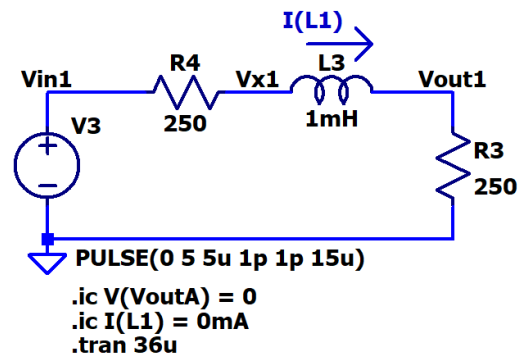


HW17 – Due Monday, April 18
EE220 – Circuits I
Spring 2022

To get full credit:

- Show your work.
- Put a box around each of your answers.
- Make sure to **follow all instructions**.

1. Sketch the waveforms (yes, by hand) for **Vin1**, **Vx1**, **Vout1**, **I(L3)** in the following circuit. Specifically, determine and put a box around the equations that you use to sketch these waveforms. Verify that your waveforms are correct using LTspice. (6 points)



2. Discuss the operation of the circuit from problem 1 in your own words. In your brief, written discussion, mention specifically each of the three labeled voltages and the inductor current and explain their behavior. (4 points)
3. Determine the amplitude (V_{\max}), angular frequency (ω), frequency (f), period (T), and phase angle (ϕ) of the following sinusoidal signals. Then, using voltage sources and transient sims in LTspice, provide simulations showing at least 5 periods (and no more than 10 periods) of each of these waveforms. (6 points)

- i. $V_a(t) = 169.7 \sin(377t)$
- ii. $V_b(t) = 12 \sin(600t + 15^\circ)$
- iii. $V_c(t) = 24 \cos(6283t)$