ECE 320 - Homework #1

EE 206 Review, Phasors. Due Monday, August 28th, 2017

Current Loops:

1a) Write the current loop equations for the following circuit

1b) Solve using Matlab (or similar program)

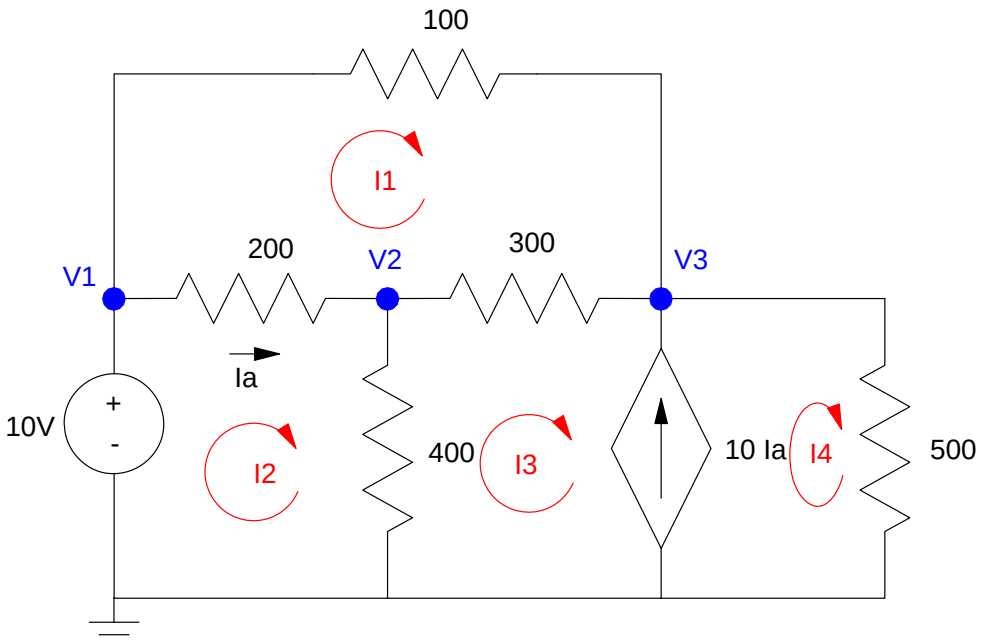
1c) Check your answers in PartSim (or similar circuit simulator)

Voltage Nodes:

2a) Write the voltage node equations for the following circuit

2b) Solve using Matlab (or similar program)

2c) Check your answers in PartSim (or similar circuit simulator)



Problem 1 - 2

3) Assume Vin contains a DC and 60Hz signal:

$$V_{in} = 10 + 3\sin(377t)$$

3a) Determine the impedances of the inductor, capacitor, and resistor at DC and 377 rad/sec

3b) Determine the voltage, V2, using phasor analysis

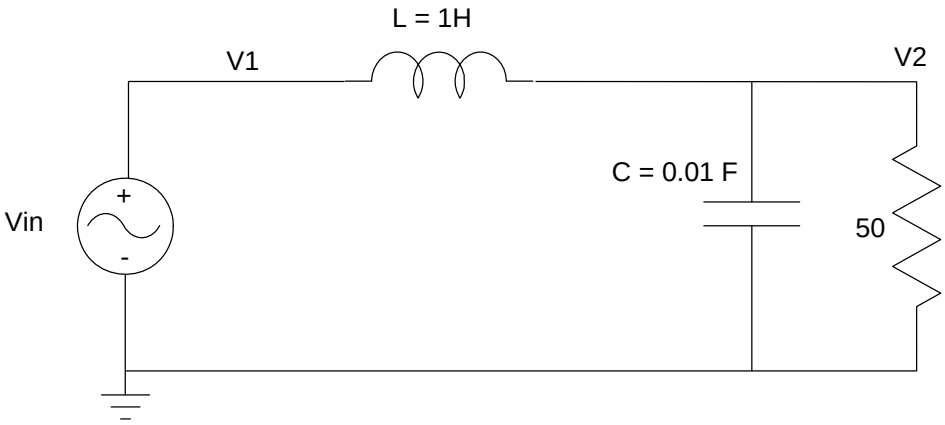
3c) Check your answer using PartSim (or similar program)

4) Assume Vin contains a DC and 1kHz signal:

$$V_{in} = 5 + 3\sin(6280t)$$

4a) Determine the impedances of the inductor, capacitor, and resistor at DC and 377 rad/sec

4b) Determine the voltage, V2, using phasor analysis



Problem 3 & 4: