

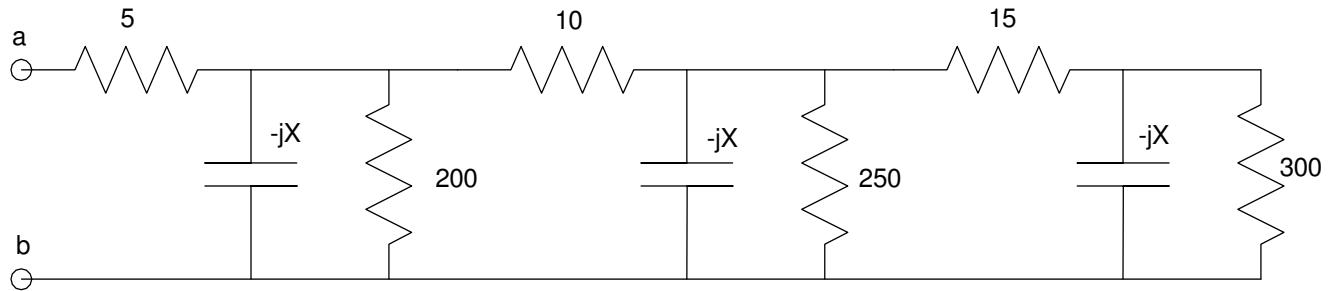
ECE 320 - Homework #1

EE 206 Review, Phasors. Due Wed, Jan 20th

Please submit as a Word or pdf file if submitting on Blackboard or emailing to Jacob_Glower@yahoo.com with subject ECE 320 HW#1

Resistors in series and parallel

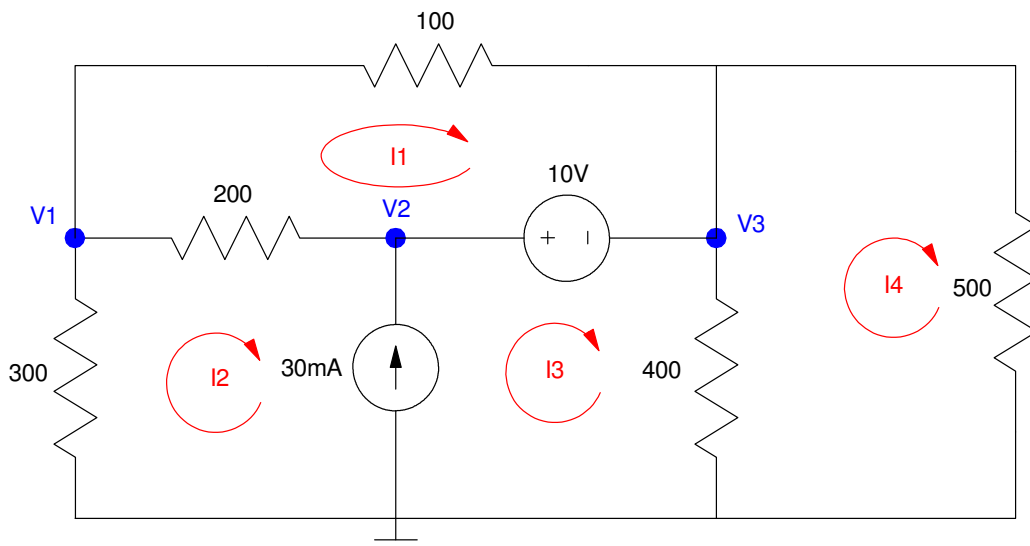
- 1) Assume $X = \text{infinity}$ (DC analysis). Determine the resistance R_{ab}
- 2) Assume $-jX = -j200$. Determine the resistance R_{ab} (it will be a complex number)



Problem 1 & 2

Voltage Nodes & Current Loops

- 3) (Voltage Nodes): For the following circuit
 - a) Write the voltage node equations
 - b) Solve using Matlab (or similar program)
 - c) Check your answers in CircuitLab (or similar circuit simulator)
- 4) (Current Loops) For the following circuit
 - a) Write the current loop equations
 - b) Solve using Matlab (or similar program)
 - c) Check your answers in CircuitLab (or similar circuit simulator)



Problem 3 & 4

5) Assume V_{in} contains a DC and 400 rad/sec (63.66Hz) signal:

$$V_{in} = 10 + 5 \cos(400t) + 6 \sin(400t)$$

- a) Determine the impedances of the inductor, capacitor, and resistor at DC and 500 rad/sec
- b) Determine the voltage, V_2 , using phasor analysis
- c) Check your answer using PartSim (or similar program)

