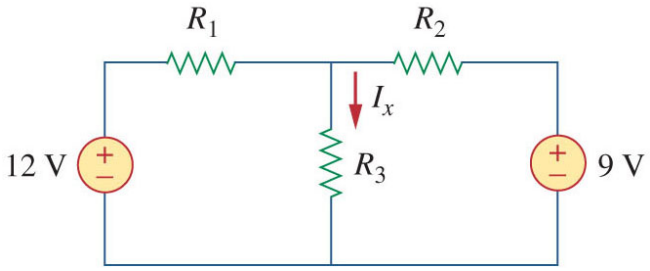
EGR 220 HW 3 For Feb 20

You Do NOT need to hand this homework in – but be able to do the problems. These concepts will be on Exam 1 (Feb 19th during Lab Time)

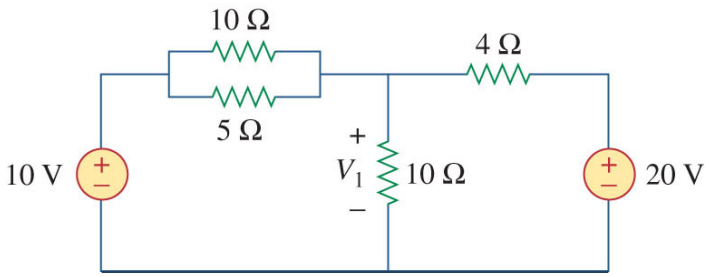
Chapter 3 Problems

1) Find i_x in the circuit below. You must select R values (select simple values, but not all = 1Ω)

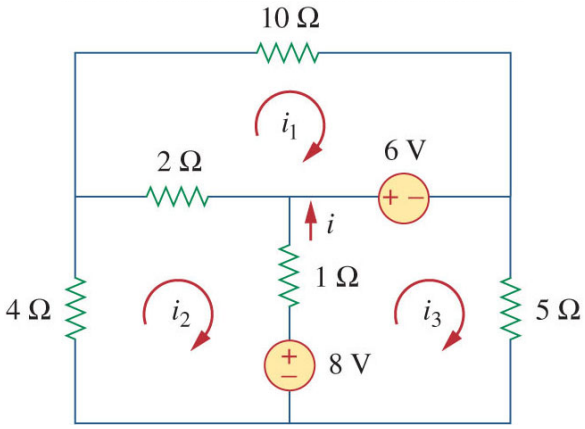


2) Solve for V_1 in the circuit below (circuit for problems 2 & 3), using *nodal* analysis

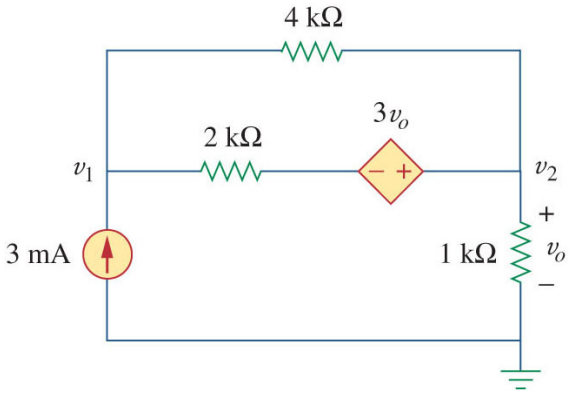
3) Solve for V_1 in the same circuit below, using **mesh** analysis



4) Solve for *i* in the circuit below using **mesh** analysis.

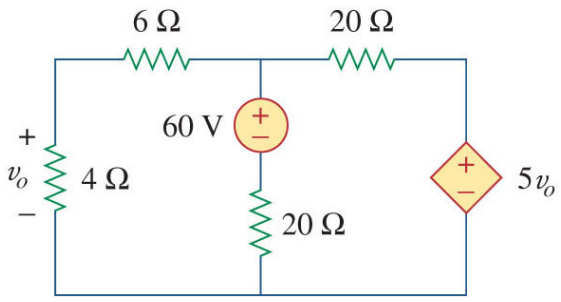


5) Find v_1 and v_2 in the circuit below, using nodal analysis.

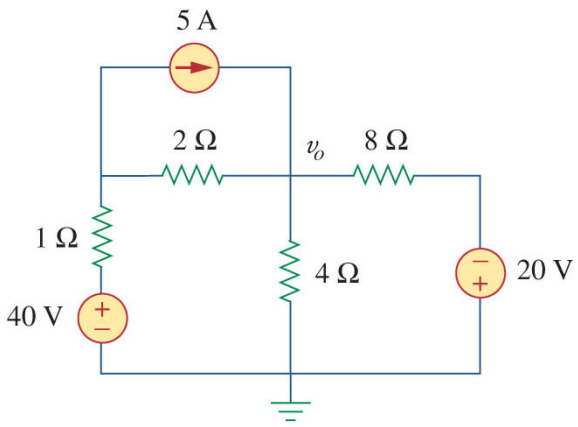


6) Using Nodal Analysis, find v_o. Things to notice about this circuit:

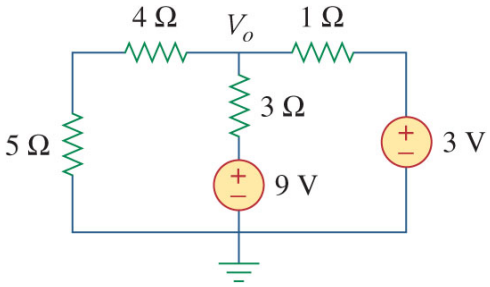
- There is a dependent source – a voltage source that depends upon a different voltage value for its own value. This occurs in real circuits where there are transistors in the circuit
- The 60V source is not connected to ground, which means it contributes a 60V increase in voltage potential, with respect to the voltage that is at the node shared with the 20Ω resistor.



7) Using Mesh Analysis, find v_o in the circuit below.



8) Use *superposition* to find Vo in the circuit below.



Extra

Use **source transformation** to find Vo in the circuit above (from problem 8)