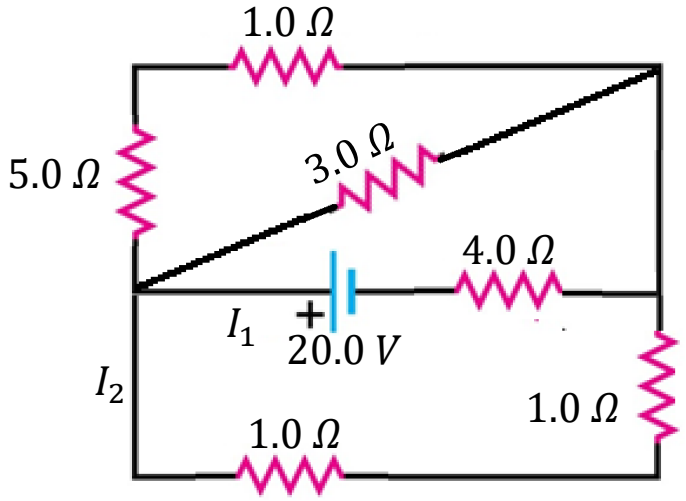
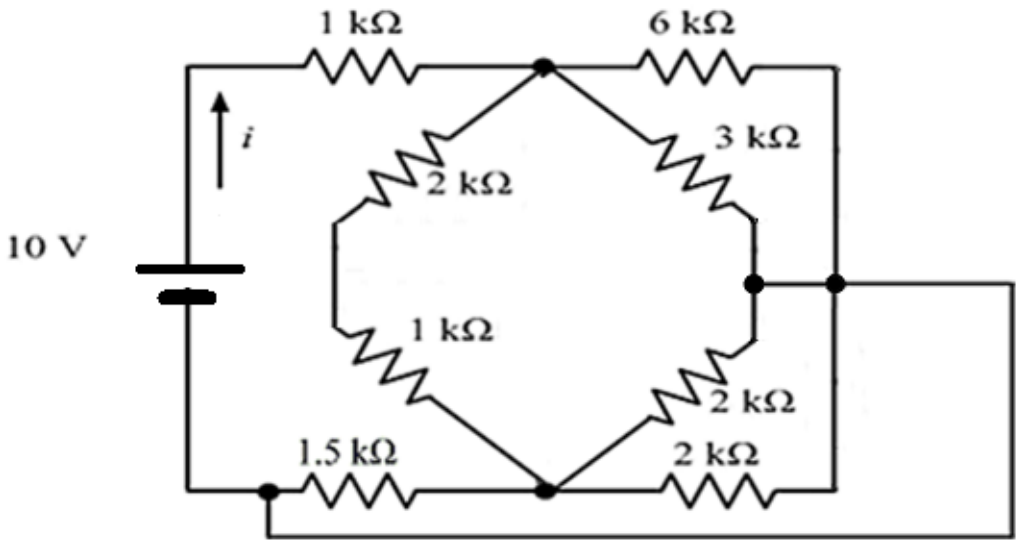
Homework Assignment #3 – Due June 24th

Due: *Monday, June 24th, not later than 10:00 a.m. in class.*
Alternately, you may drop off this assignment June 24thh not later than 9:45 a.m. in Professor Houtman's PHY1122 drop box on the 3rd Floor of the STEM building, just down the hall from Room 372.

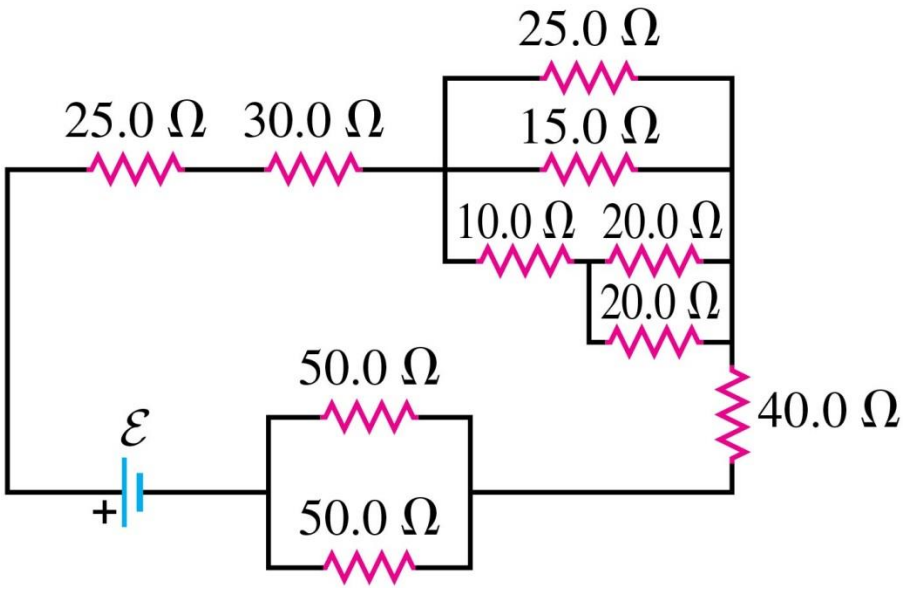
1. Find the equivalent resistance across the battery, as well as I_1 and I_2, for the circuit shown below:



2. For the resistor network shown below, determine (1) the equivalent resistance and (2) the current i through the circuit



3. In the circuit shown below all the resistors are rated at a maximum power of 2.00 W. What is the maximum emf ε that the battery can have without burning up any of the resistors?



4. (a) Find the current through the 14.0V battery and each resistor in the circuit shown in the figure below, along with the power loss across each resistor. (b) What is the equivalent resistance of the resistance network? Double check that the V^2/R_{equiv} losses for the equivalent circuit are the same as the sum of the power lost across all the resistors. You may assume the 14.0 V battery has negligible internal resistance.