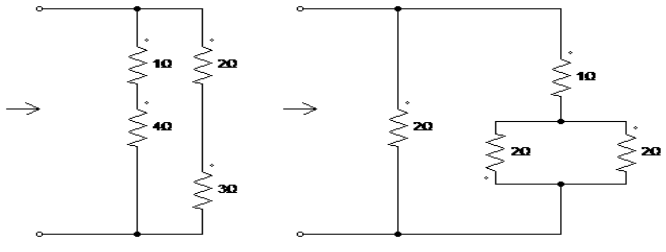
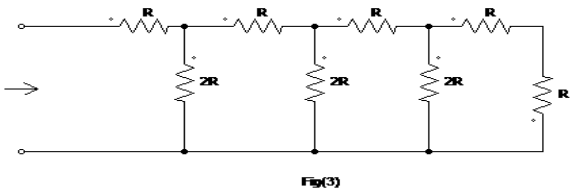
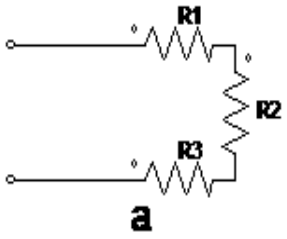
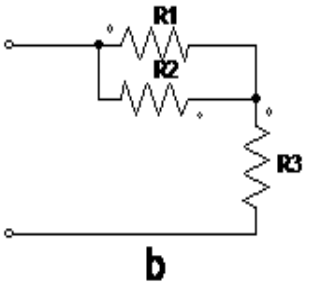
1. Find the equivalent resistance from the indicated terminal pair of the network in figs. 1, 2 and 3.

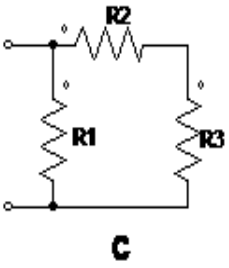


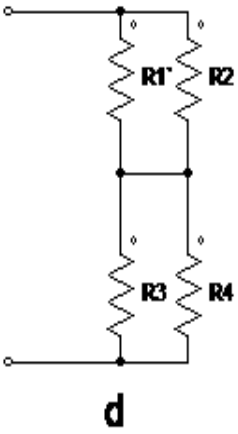


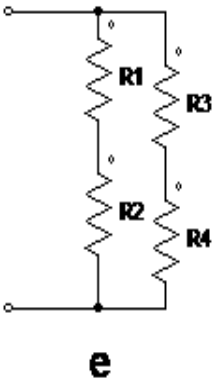
2. Find the equivalent resistance at the terminal pair for each of the networks shown in figs. a, b, c, d, and e.











3.

A. Assign branch voltage and branch current variables to each element in the network in figure.
B. How many linearly independent KVL equations that can be written for this network?
C. How many linearly independent KCL equations that can be written for this network?
D. Formulate a set of KVL and KCL equations for the network
E. Assign nonzero numbers to each branch current such that your KCL equations are satisfied
F. Assign nonzero numbers to each branch voltage such that your KVL equations are satisfied

G. As a check on your result, you can draw on the fact that power is conserved in a network that Obeys KVL and KCL. Therefore, calculate the quantity sum of voltage and current it should be zero.

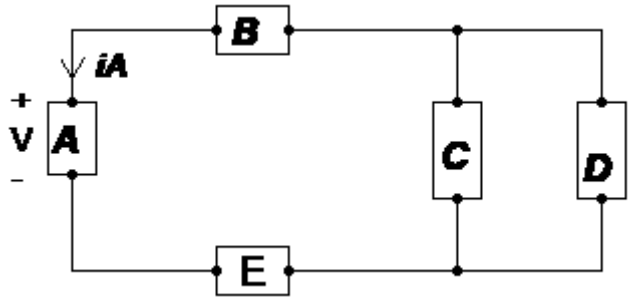


Fig .9

4. A portion of a larger network is shown in figure show that the algebraic sum of the currents into this portion of the network must be zero

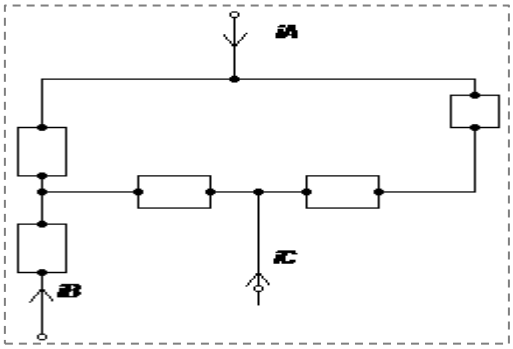


Fig .10

5. A pictorial diagram for a flashlight as shown in figure 11 .the two batteries are identical and each has an open-circuit voltage of 1.5 V. The lamp has a resistance of 5 ohm when lit. With the switch closed, 2.5V is measured across the lamp. What is the internal resistance of each battery?

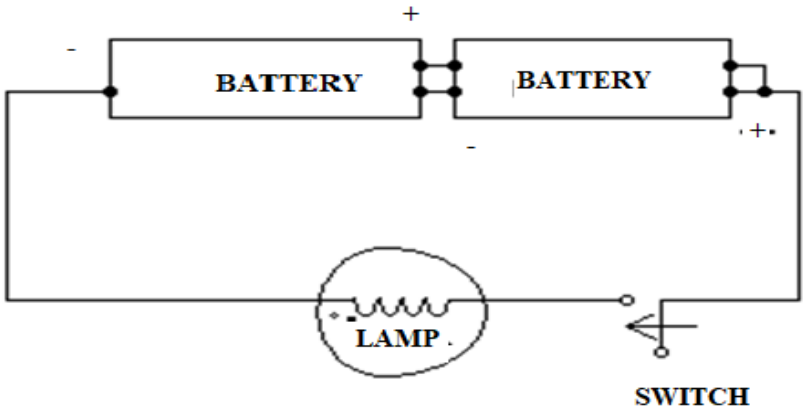


Fig .11

6. In each network in figure (12, 13) find the numerical values of the indicated variables (units are amperes volts and ohms)

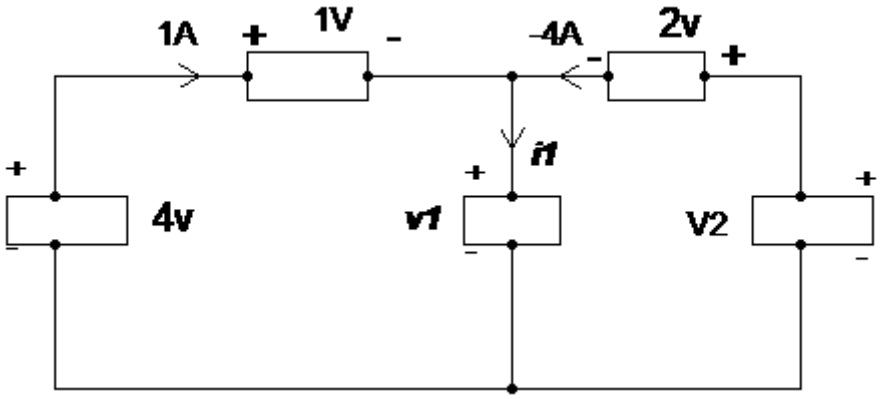


Fig .12

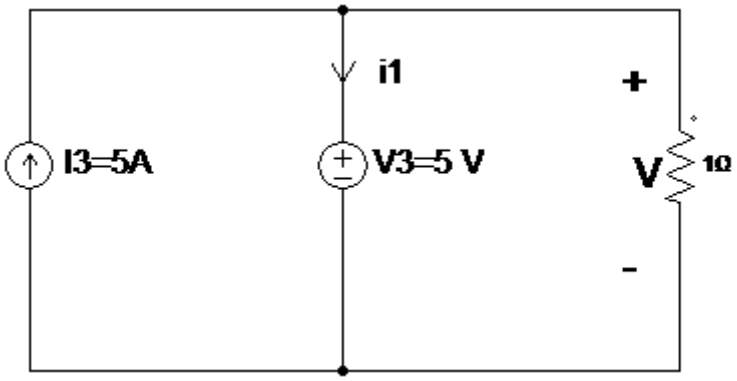


Fig .13

7. Find the potential difference between each of the lettered nodes (A, B, C, D) in figure 14 and ground. All resistances are in ohms.

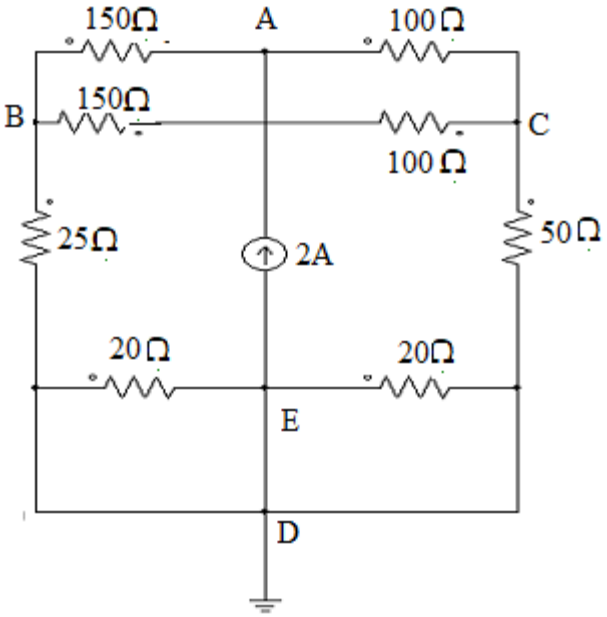


Fig .14

8. Find the voltage between node C and the ground node in figure 15 .All resistances are in ohms

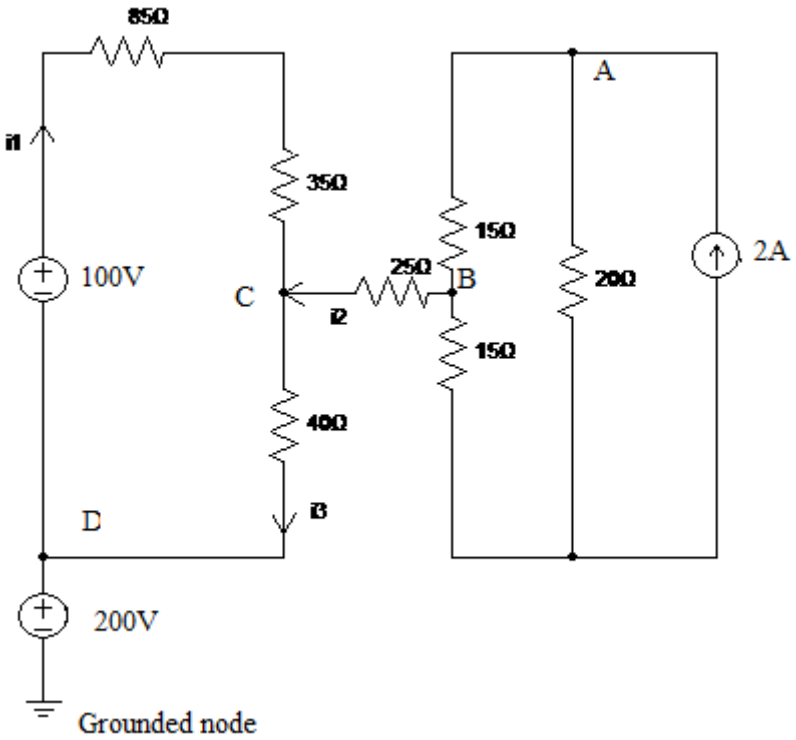


Fig.15

9. Design a resistor attenuator to make $V_0=V_i / 1000$, using the circuit configuration given in figure.16 and resistor values available in your lab. This problem is under constrained so it has many answers.

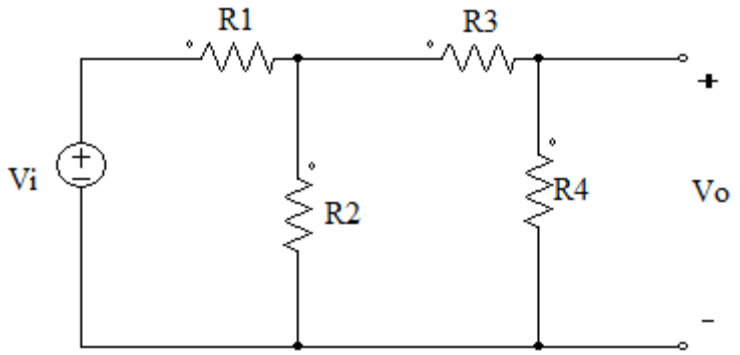


Fig. 16