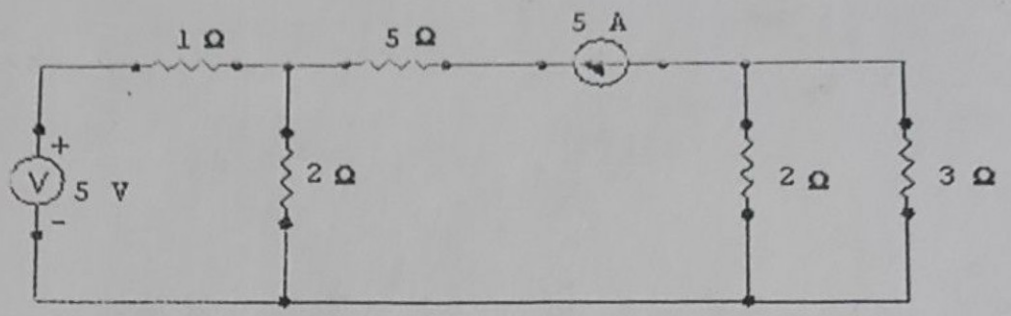
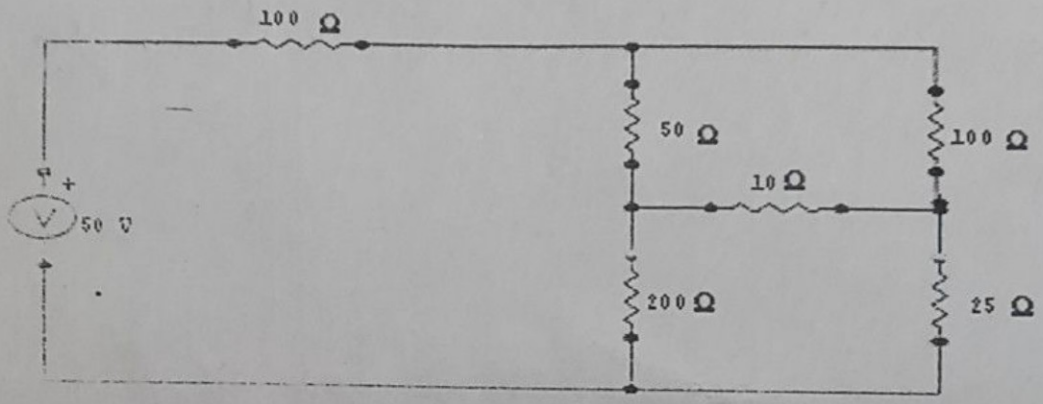
Using Loop Analysis Method:

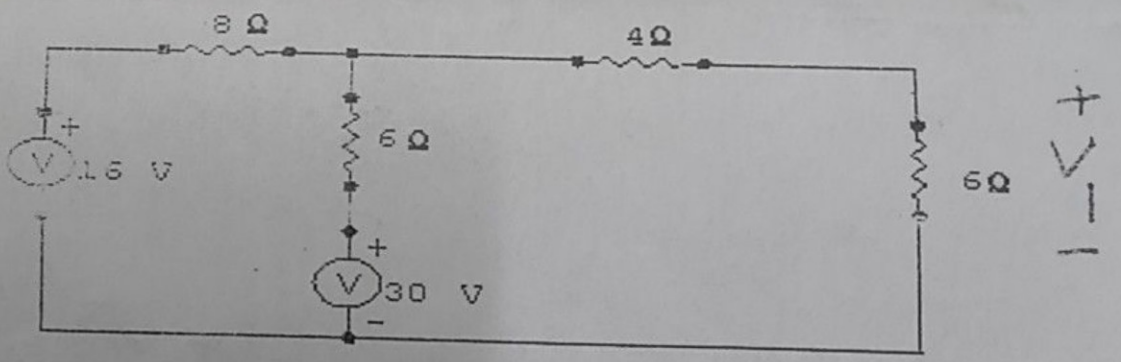
1. Find current in all branches of the circuit given below:



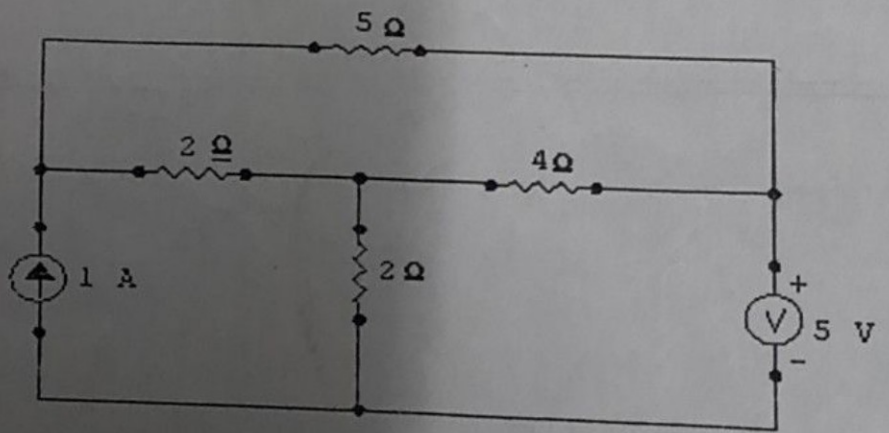
2. Find current through 10 Ω resistance branch of the circuit given below:



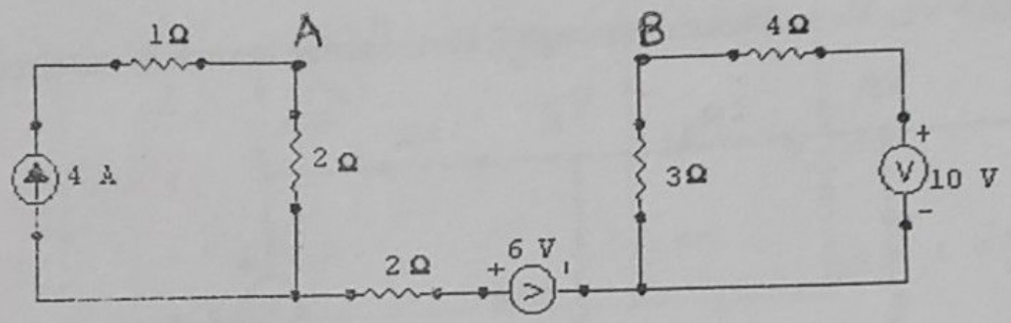
3. Find voltage V_1 in the circuit given below:



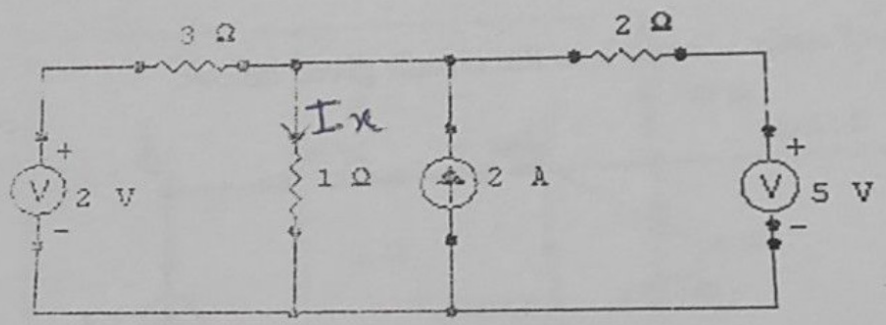
4. Calculate current through 5 Ω resistance branch in the following circuit:



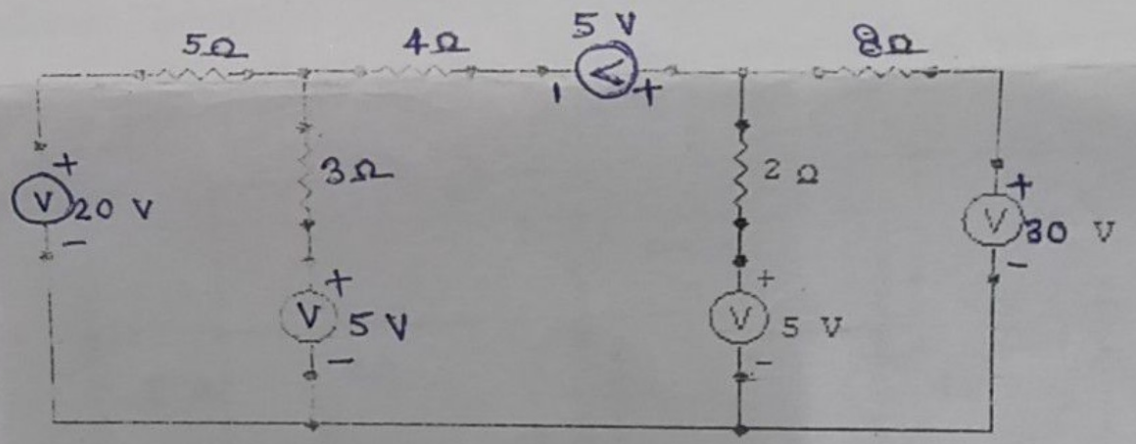
5. Find voltage across A & B terminals in the network given below:



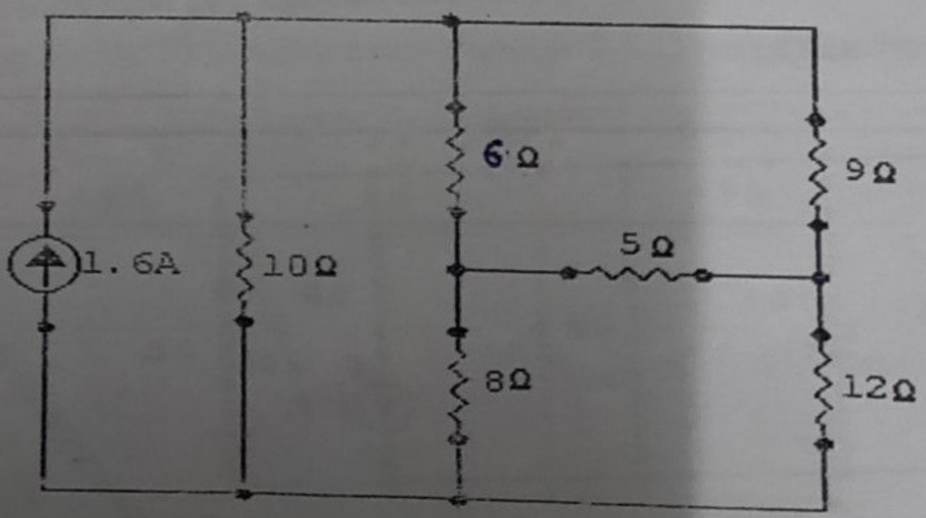
6. Find current I_x in the network given below:



7. Find current in 4Ω resistance branch of the network given below:

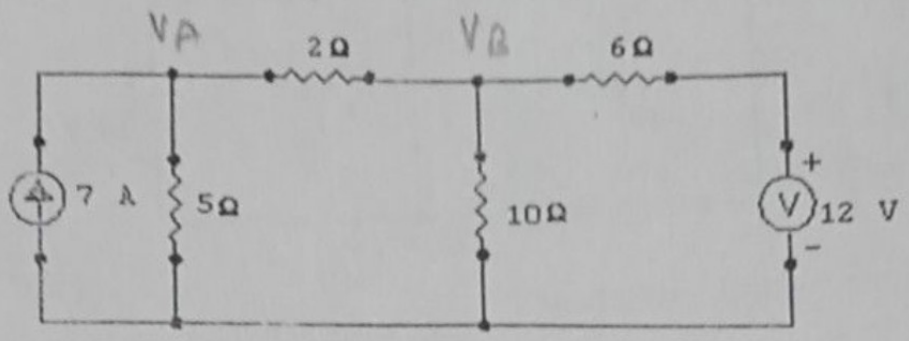


8. In the given circuit calculate current through 5 Ω resistance branch:

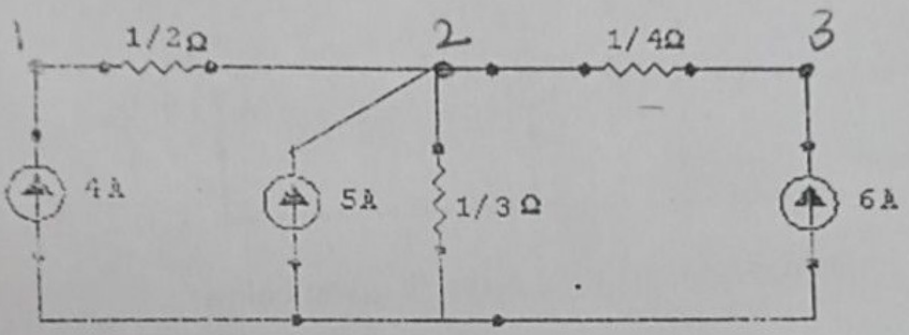


Using Nodal Analysis Method:

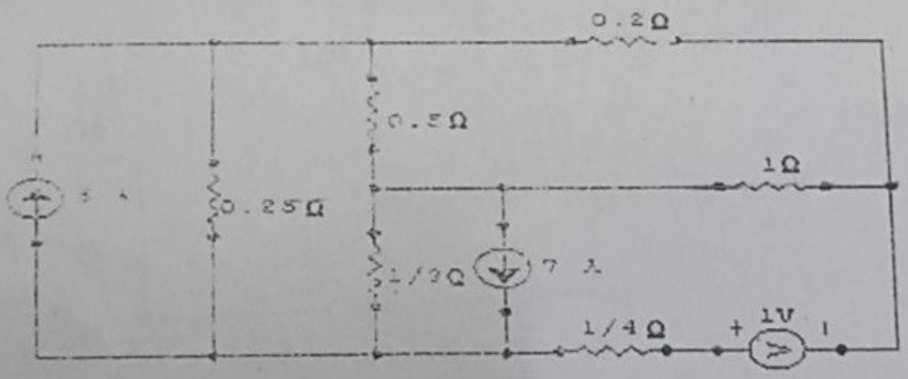
9. Find node voltages V_A, V_B and current through 2 Ω resistance branch in the circuit given:



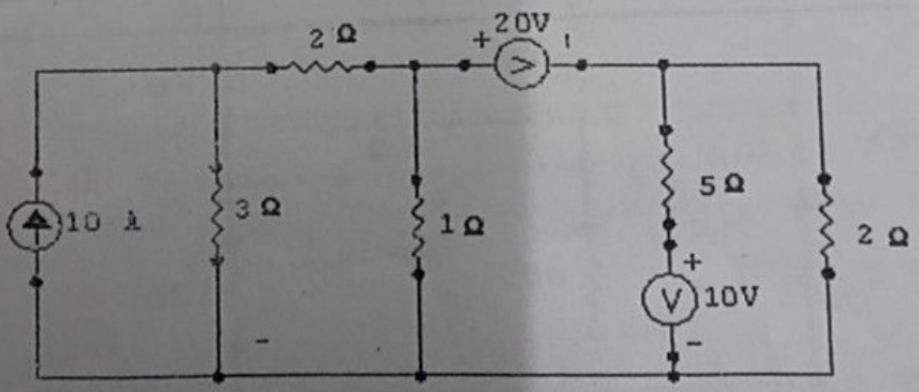
10. Find the potentials of node 1,2 and 3 in the circuit given below:



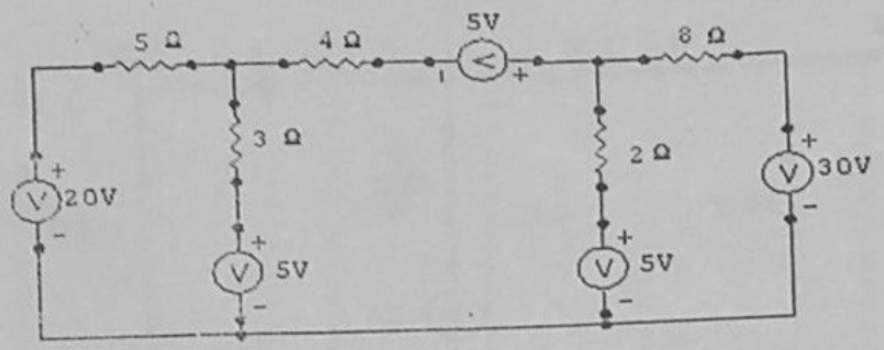
11. Find current through 0.25 Ω resistance branch in the given circuit:



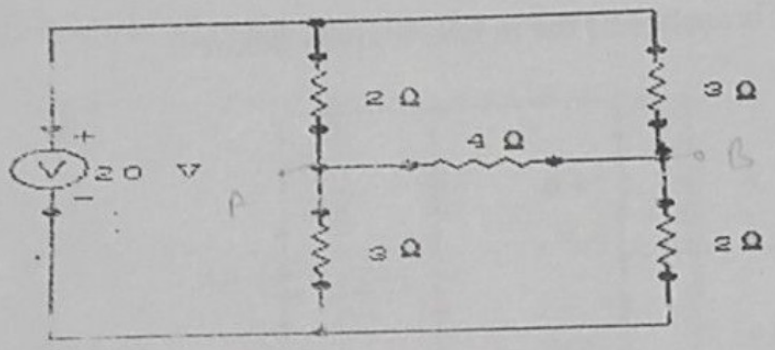
12. Find node voltages V_1, V_2, and V_3. Also find current through 5 Ω resistance branch in the circuit given below:



13. Find Node voltages V_A and V_B in given circuit:

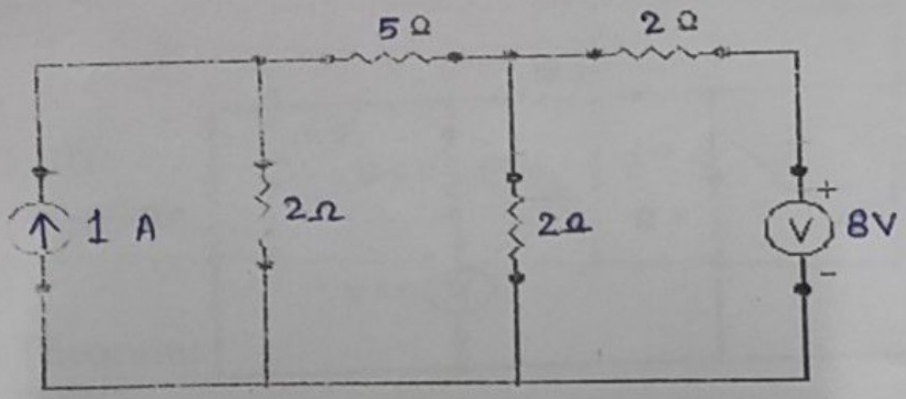


14. Determine the current in 4 Ω resistance branch in the given circuit:

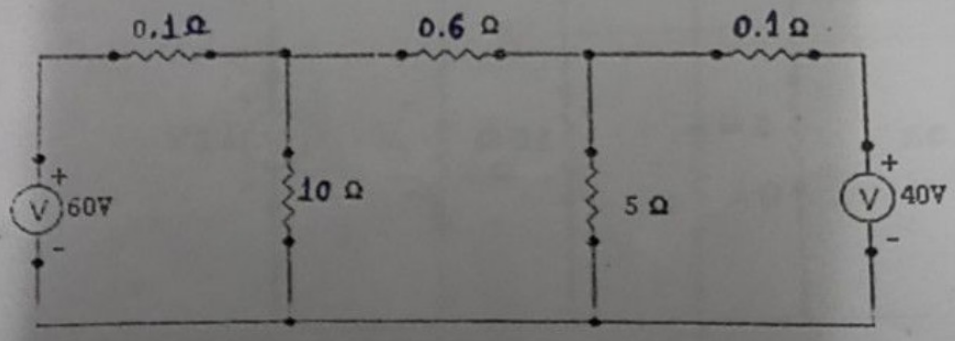


sing Superposition Theorem:

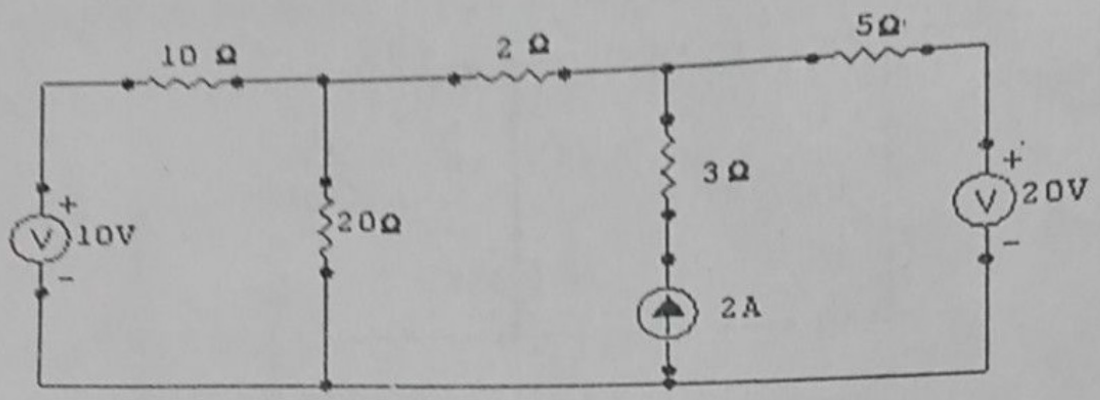
15. Calculate voltage across 5 Ω resistance in the given circuit:



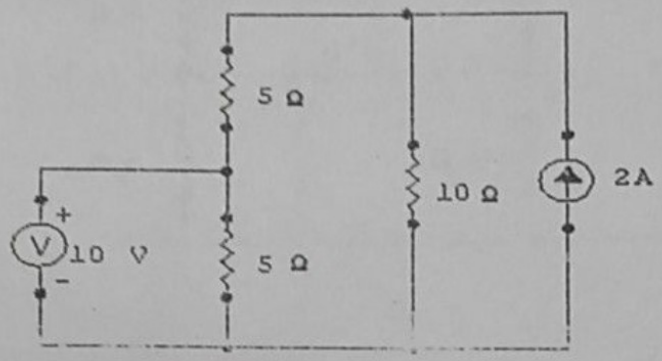
16. Calculate voltage across 10 Ω and current through 0.6 Ω resistance branch in the circuit given below:



17. Find current through 2 Ω resistance branch in the given circuit:

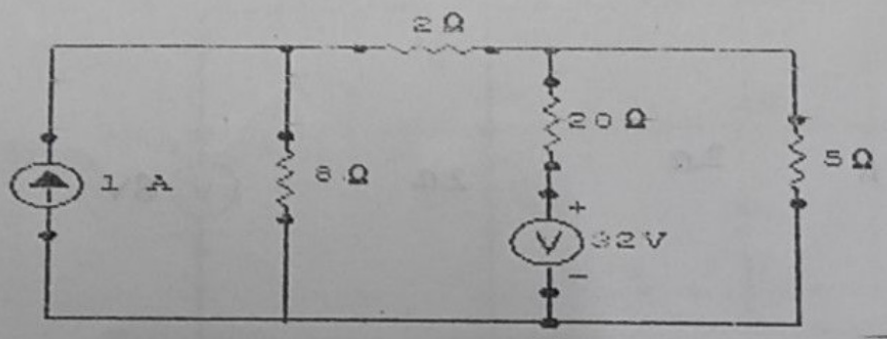


18. Determine current in all branches of the network given below:

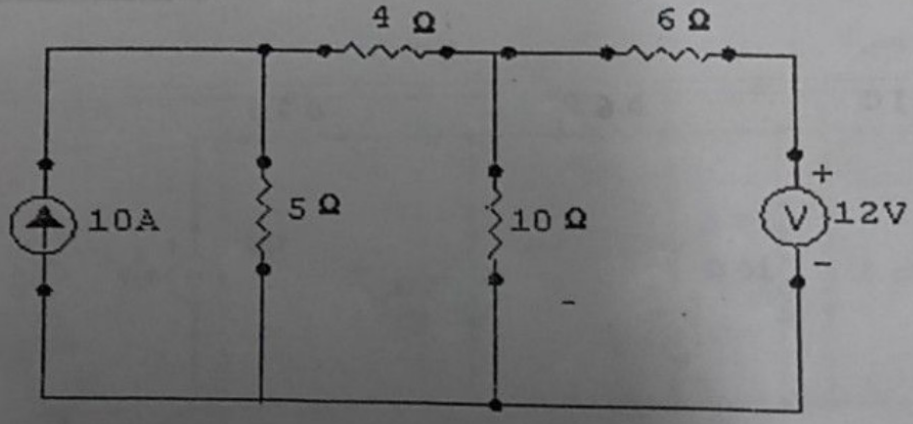


Using Thevenin's Theorem:

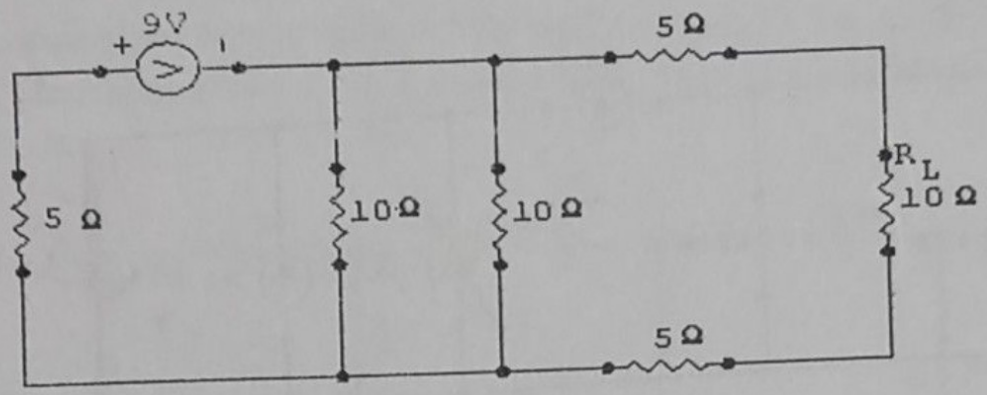
19. Find current through 5 Ω resistance branch:



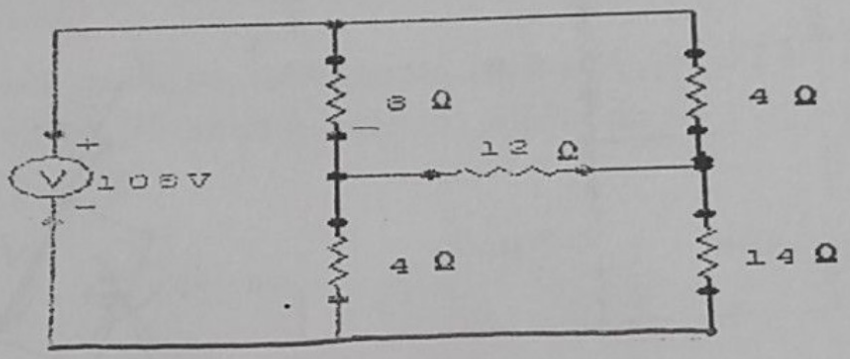
20. Find current through 4 Ω resistance branch:



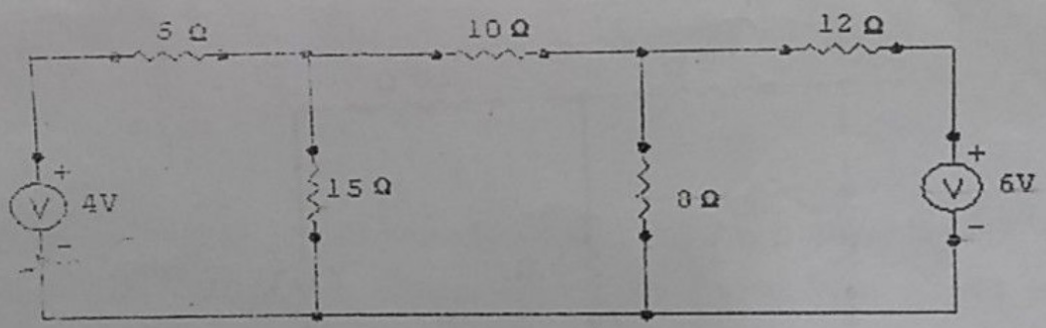
21. Find current through load resistance branch:



22. Find current through 12 Ω resistance branch:

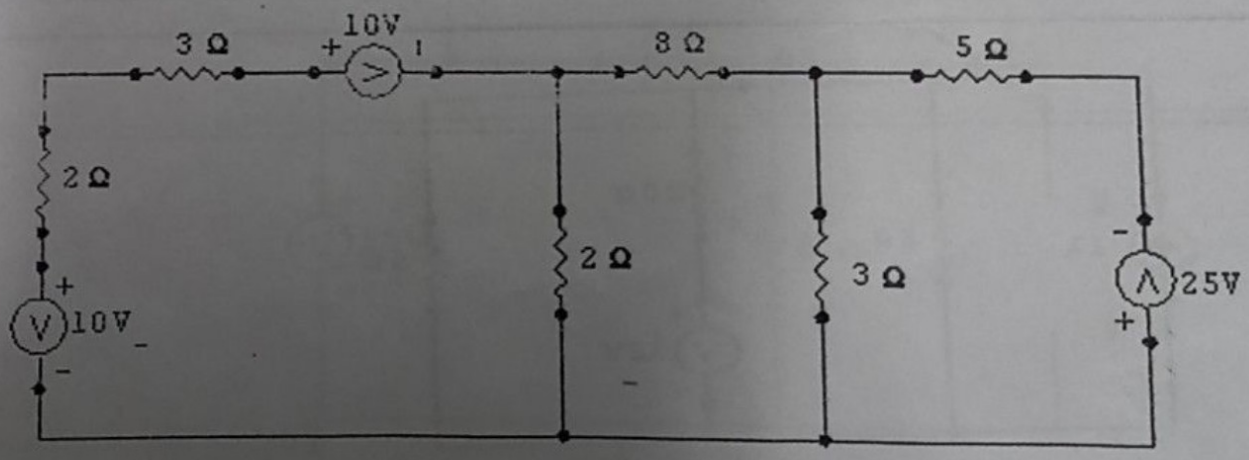


23. Find current through 10 Ω resistance branch:

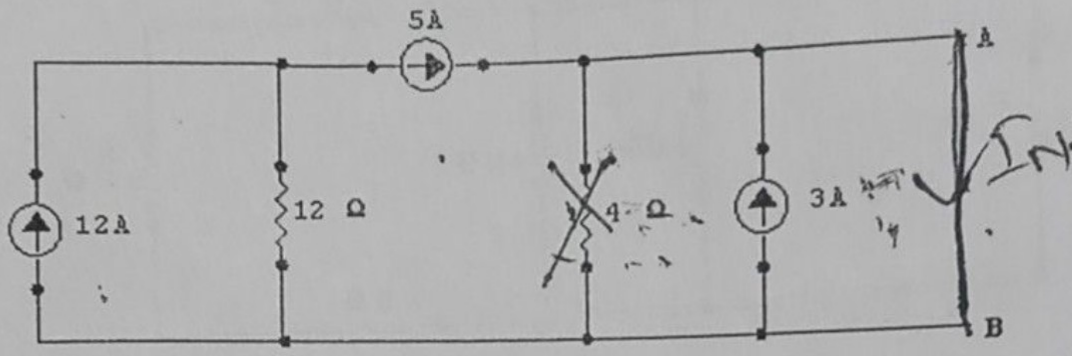


Using Norton's Theorem:

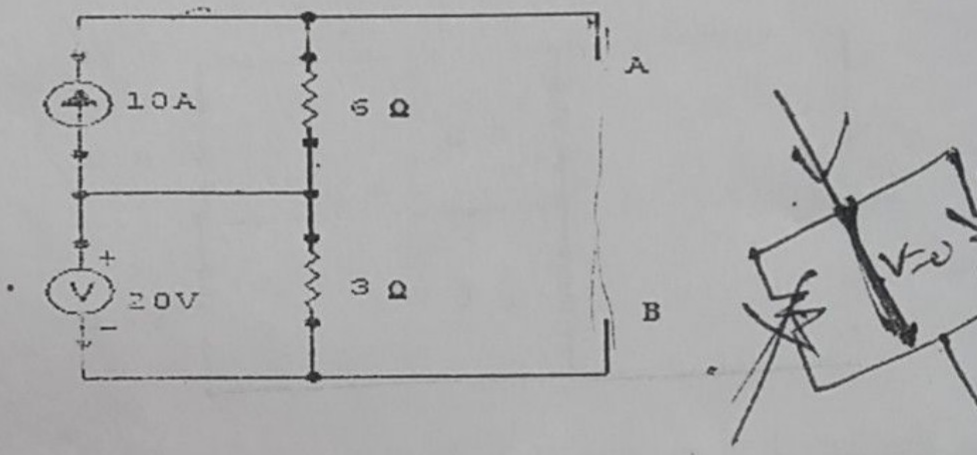
24. Find current through 5 Ω resistance branch:



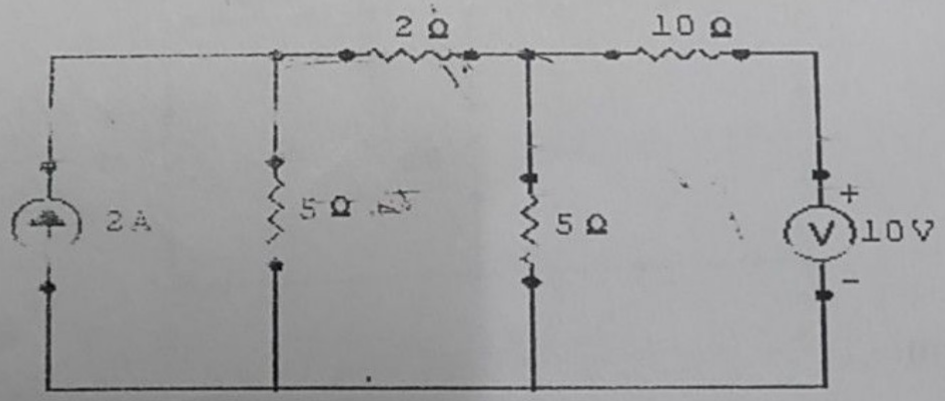
25. Develop Norton's equivalent circuit across A & B of the circuit given below:



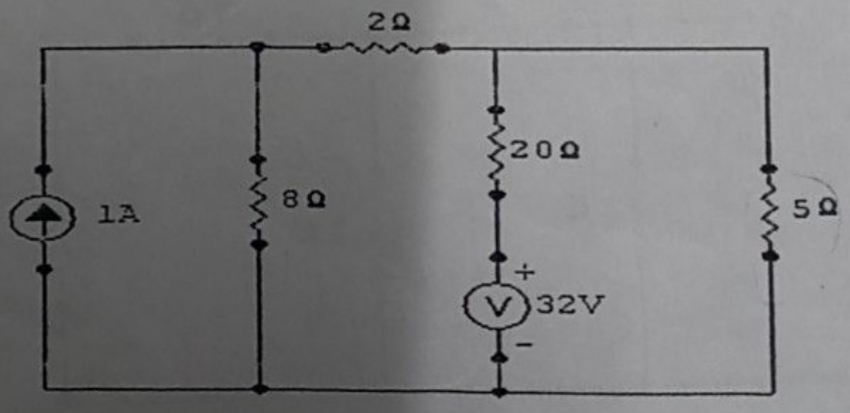
26. Develop Norton's equivalent circuit across A & B of the circuit given below:



27. Find current through 2 Ω resistance branch:

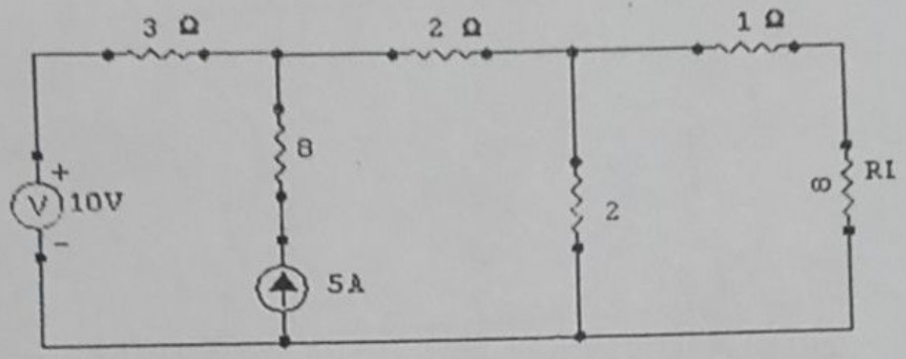


28. Find current through 5 Ω resistance branch:

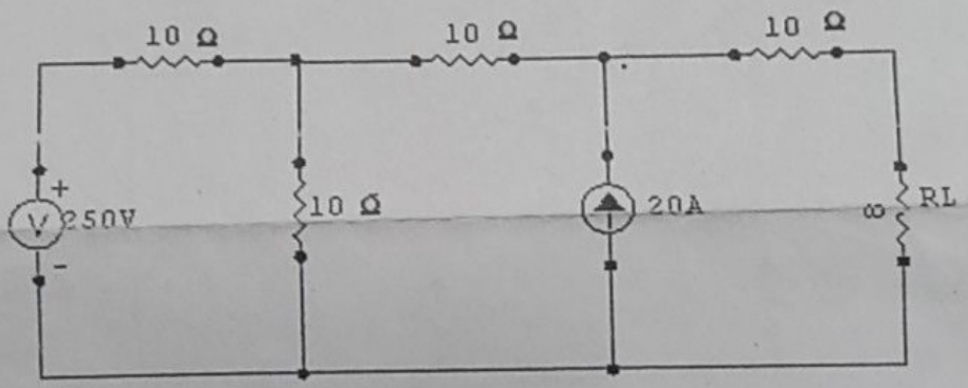


Using Maximum Power Transfer Theorem:

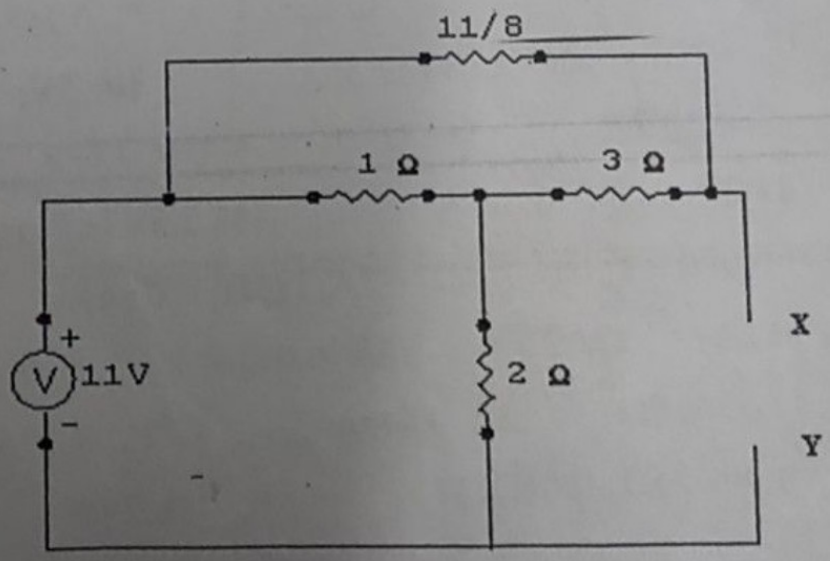
29. In the circuit given below, calculate the value of load resistance R_L that is required to transfer Maximum Power from source to load. Also find maximum power transferred across load:



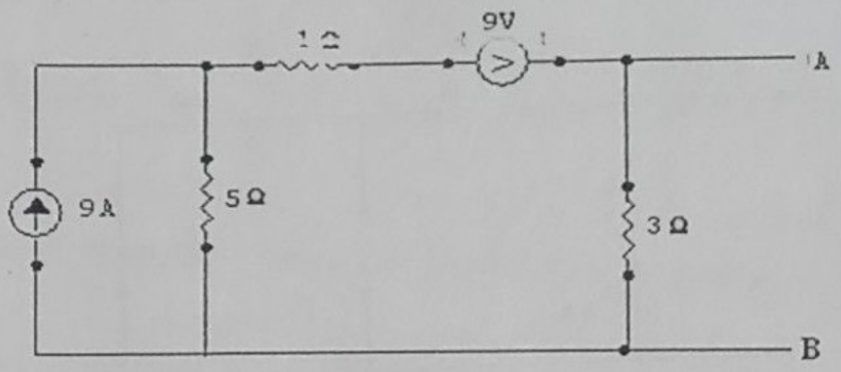
30. In the circuit given below, calculate the value of load resistance R_L that is required to transfer Maximum Power from source to load. Also find maximum power transferred across load:



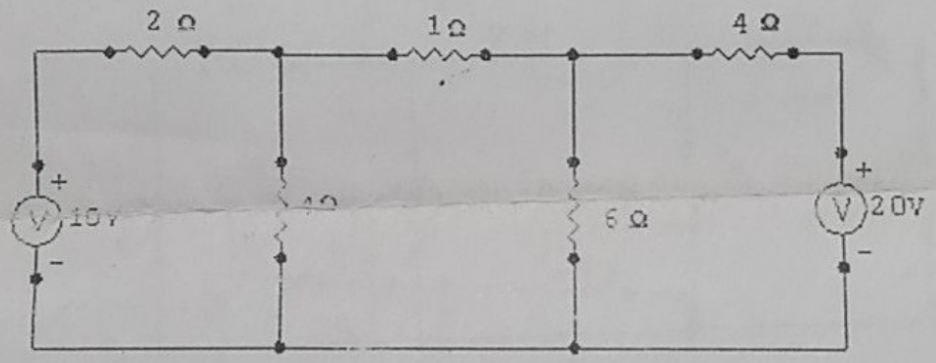
31. In the circuit given below, calculate the value of load resistance R_L that is to be connected across X and Y terminals to transfer Maximum Power from source to load. Also find maximum power transferred across load:



32. In the circuit given below, calculate the value of load resistance R_L that is to be connected across A and B terminals to transfer Maximum Power from source to load. Also find maximum power transferred across load:



33. In the circuit given below, calculate the value of resistance which can replace 6 Ω resistance branch to transfer Maximum Power from source to resistance. Also find maximum power transferred across load:



ANSWERS

1. I (1Ω) = 5/3A, I (2Ω) = 10/3A, I (2Ω) = 3A, I (3Ω) = 2A
2. 0.158A
3. 10.72V
4. 0A
5. 9.72V
6. 2.82A
7. 0.752A
8. 0A
9. V_A = 22.2V, V_B = 17.1V, 2.55A
10. 7V, 5V, 6.5V
11. 0.468A
12. V_1 = 18.05V, V_2 = 11.58V, V_3 = −8.42V, 3.68A
13. V_A = 9.21V, V_B = 11.2V
14. 0.625A
15. 2.5V
16. 56.89V, 25.33A
17. 1.707A
18. I (10Ω) = 1.33A, I (5Ω) = 2A, I (5Ω) = 0.667A
19. 1.37A
20. 3.33A
21. 0.2A
22. 2.7A
23. 0.032A
24. 3.436A
25. 8A, 4Ω
26. 13.33A, 6Ω
27. 0.645A
28. 1.37A
29. 2.43Ω, 5.25W
30. 25Ω, 1806.25W
31. 1Ω, 25W
32. 2Ω, 18W
33. 1.47Ω, 22.81W