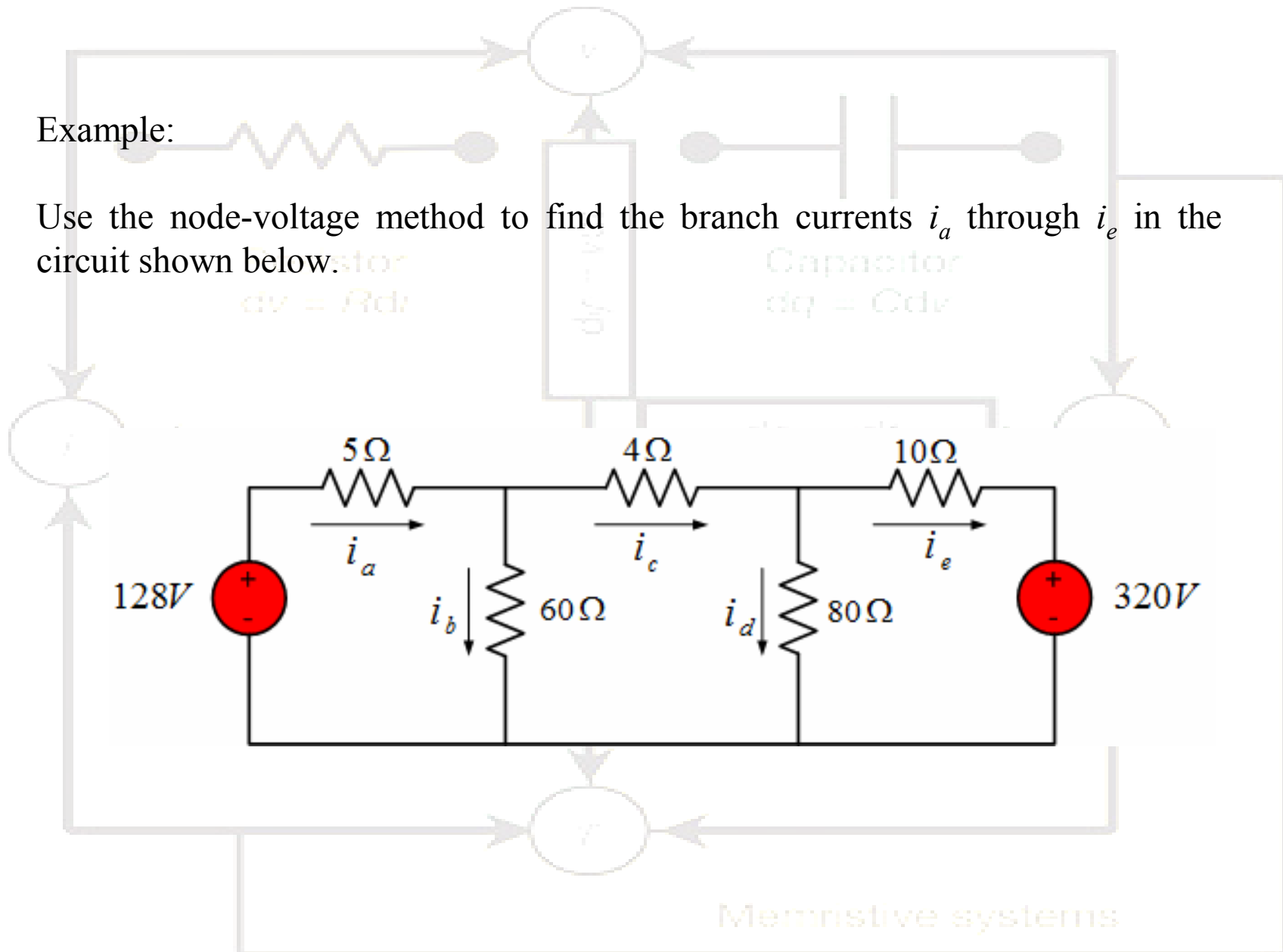


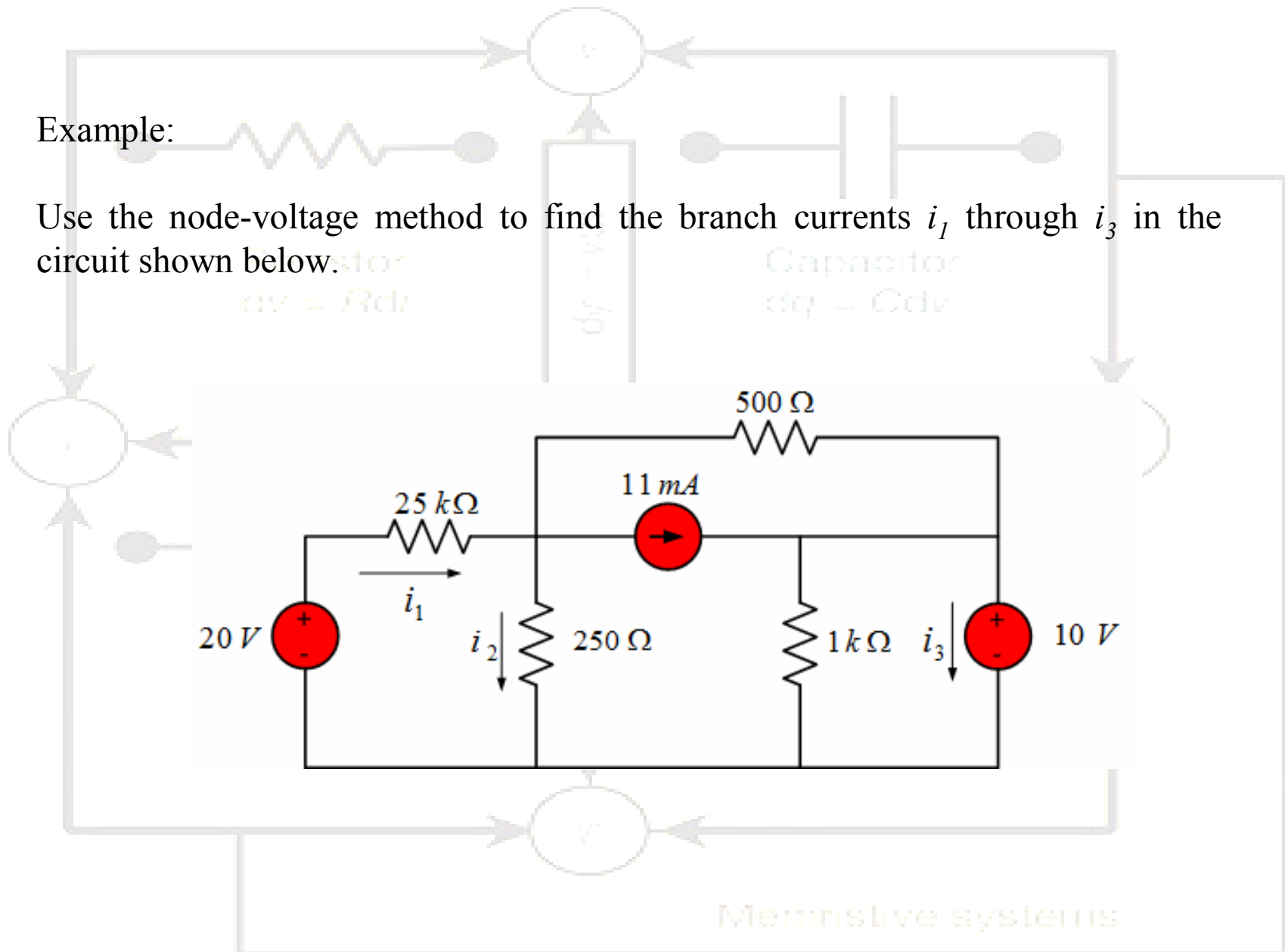
Example:

Use the node-voltage method to find the branch currents i_a through i_e in the circuit shown below.



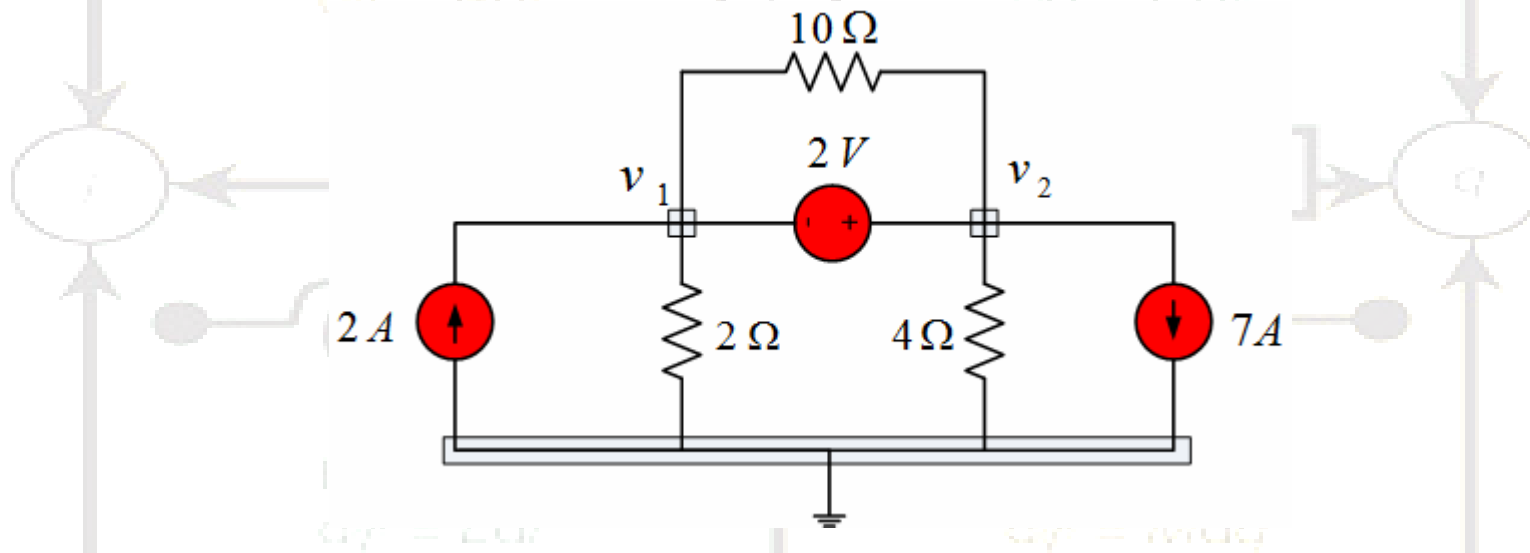
Example:

Use the node-voltage method to find the branch currents i_1 through i_3 in the circuit shown below.



The super node

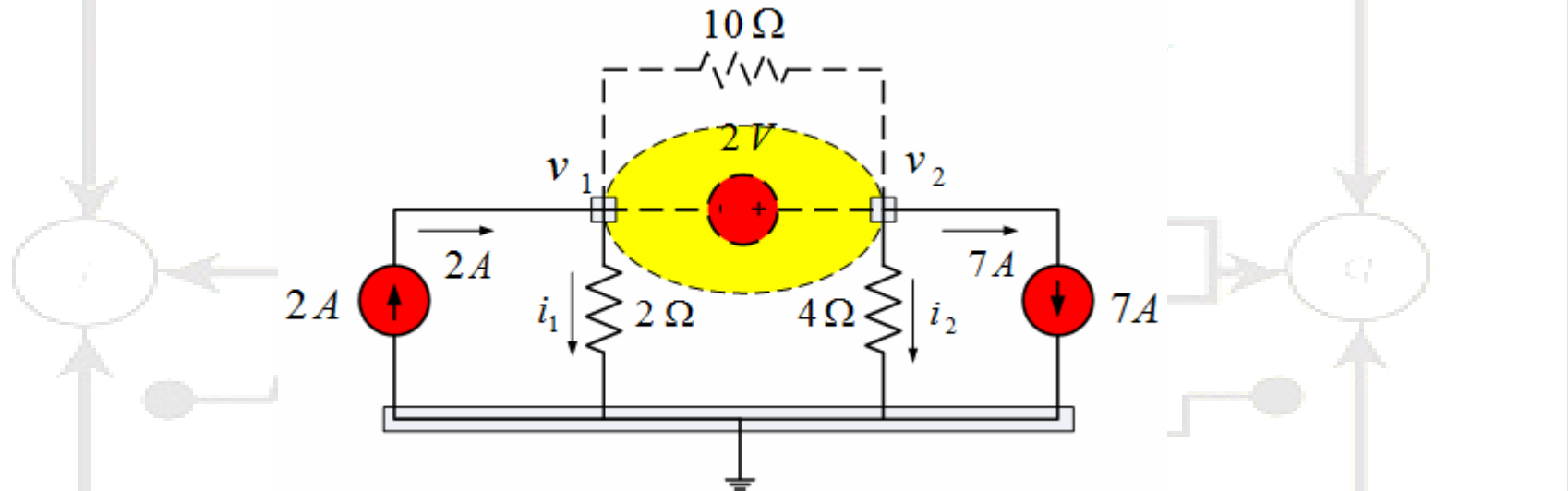
➤ when a voltage source is connected between two non-reference nodes.



Problem: The current through the voltage source cannot be written as function of its two terminal voltages!

Memristive systems

Solution: Form a supernode which is formed by enclosing the voltage source and any elements in parallel with it in a closed boundary.

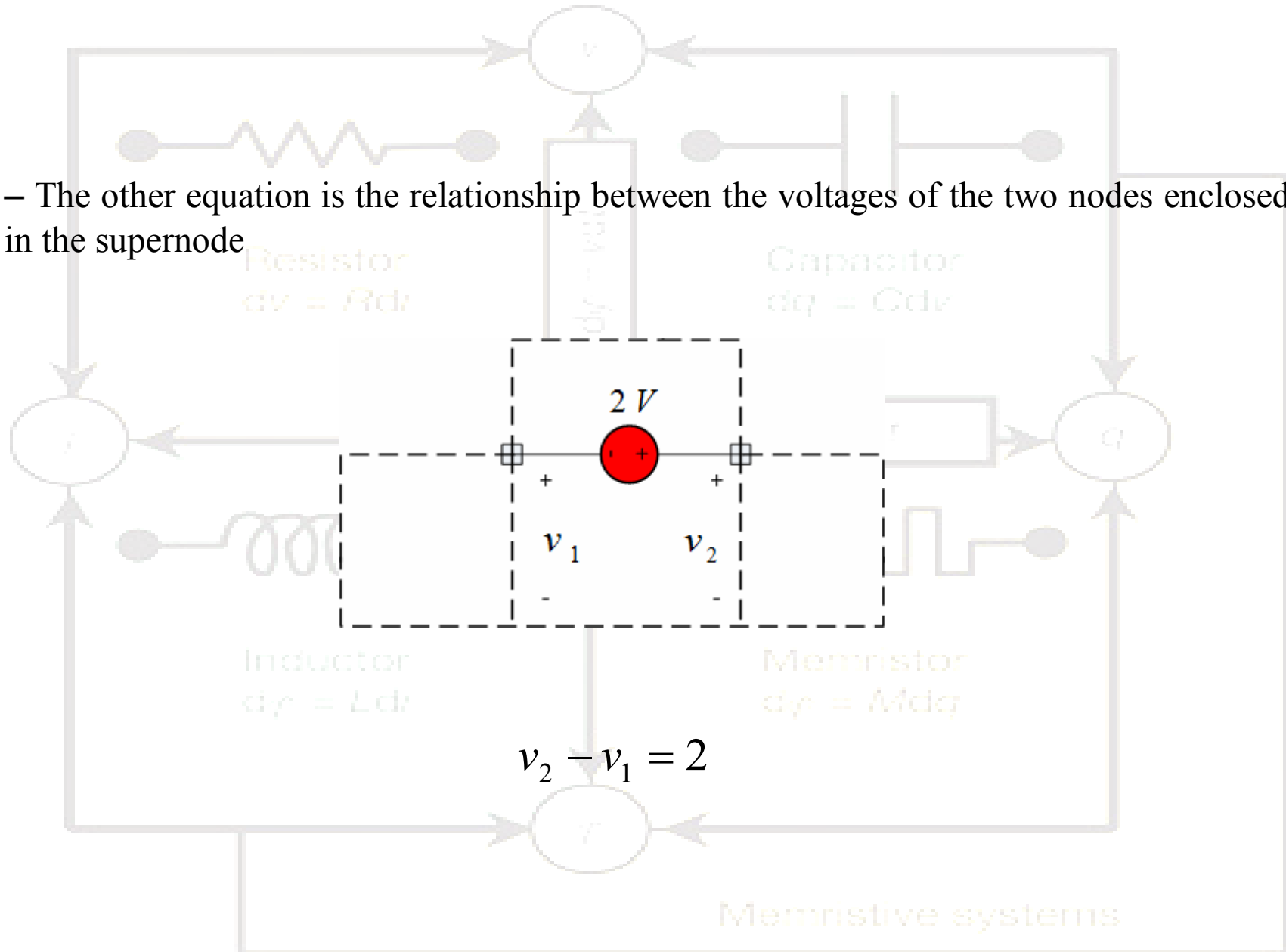


Since there are two nodes (two terminals of the voltage source) are enclosed in the supernode, two equations are needed for each supernode:

– KCL at supernode gives one equation(Write the standard node equations for the supernode)

$$-2 + \frac{v_1}{2} + \frac{v_2}{4} + 7 = 0$$

– The other equation is the relationship between the voltages of the two nodes enclosed in the supernode



Example:

Use the node-voltage method to find v and i in the circuit shown below.

