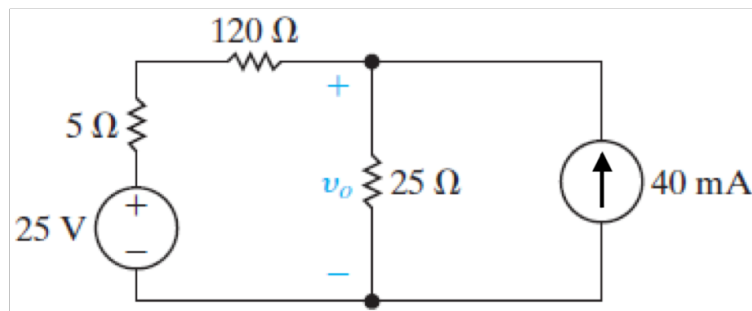


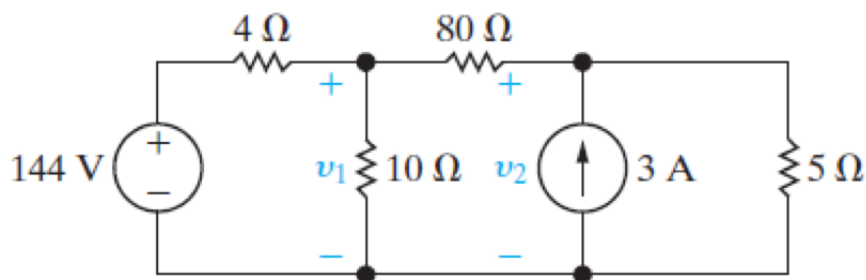
**Question 1** [10]

Use the node-voltage method to find:  $v_o$  and the power developed in the voltage source.



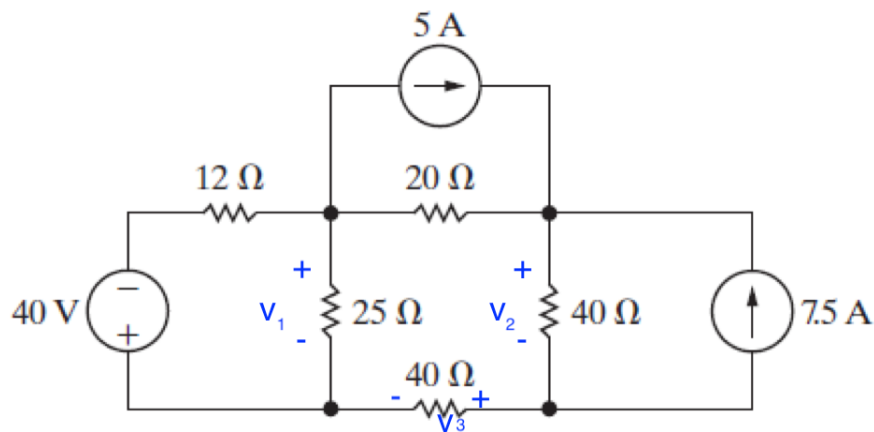
**Question 2** [10]

Use the node-voltage method to find  $v_1$  and  $v_2$  in the circuit below.



**Question 3** [10]

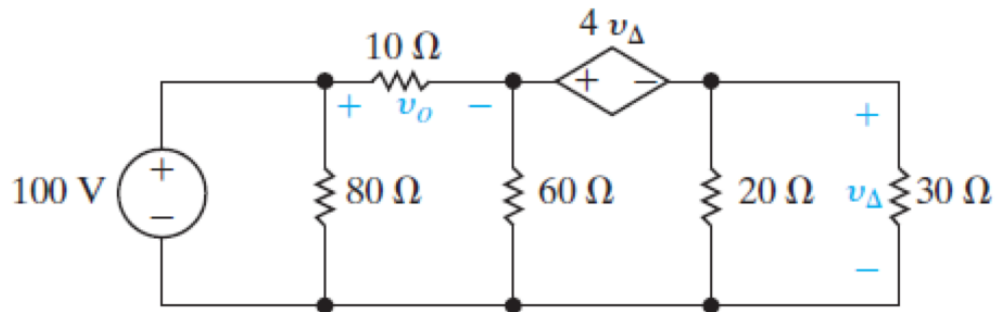
Use the node-voltage method to find the voltages shown,  $v_1$ ,  $v_2$ , and  $v_3$ .



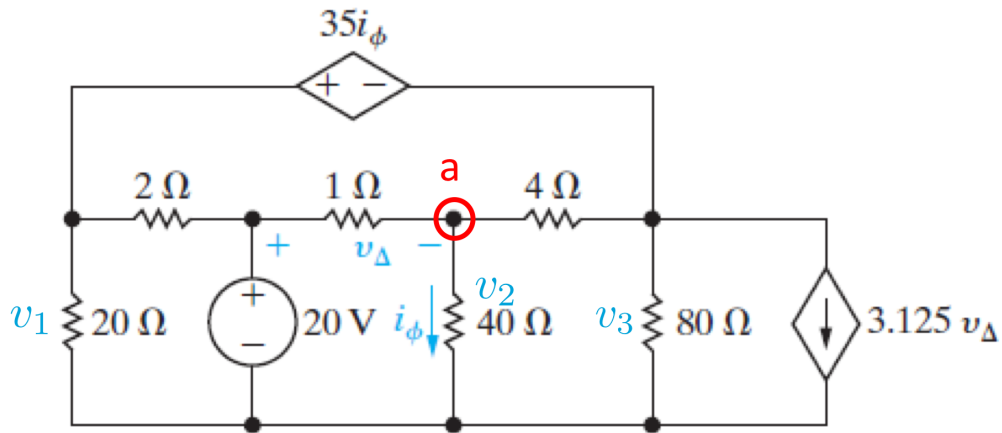
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**Question 4** [10]

Use the node-voltage method to find  $v_o$  in the circuit shown below.

**Question 5** [10]

Use the node-voltage method to find: [Hints: identify the supernode and also use the node labeled **a**.]



- (i) the voltage across the  $20\ \Omega$  resistor,  $v_1$ ,
- (ii) the voltage across the  $40\ \Omega$  resistor,  $v_2$ ,
- (iii) the voltage across the  $80\ \Omega$  resistor,  $v_3$ ,
- (iv) the controlling voltage,  $v_\Delta$ ,
- (v) the controlling current,  $i_\phi$ .