Student ID:_____ Student Name:_____ Group:_____

1) For the circuit in Fig 1, find (a) the voltage across 3 Ω, (b) current *I*.

Copyright © The McGraw-Hill Companies, Inc. Permission required for reproduction or display

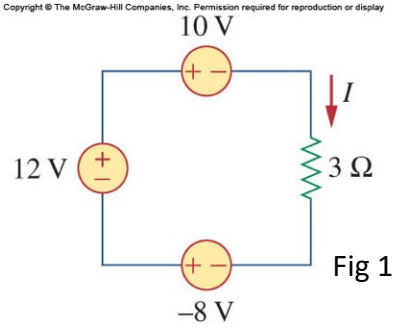

Fig 1

2) Calculate the equivalent resistance R_{ab} at terminals a-b for Fig 2.

Copyright © The McGraw-Hill Companies, Inc. Permission required for reproduction or display

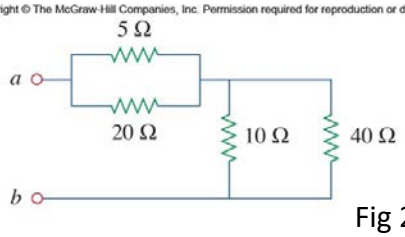

Fig 2

3) For the circuit in Fig 3, find the current I. Hint: Find the equivalent resistance seen by the source, and use Ohm's law.

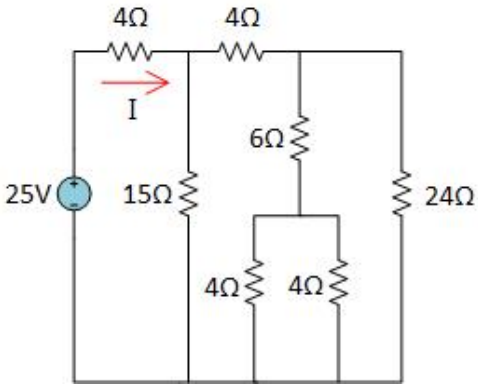

Fig 3

4) For the circuit in Fig 4, given the current directions at node 1 and node 2,

i) Circle the correct nodal equation at node 1.

(a) $24 = -V_1 - 2V_2$

(b) $18 = 7V_1 - 2V_2$

(c) $12 = -V_1 - 2V_2$

(d) $36 = 7V_1 - 2V_2$

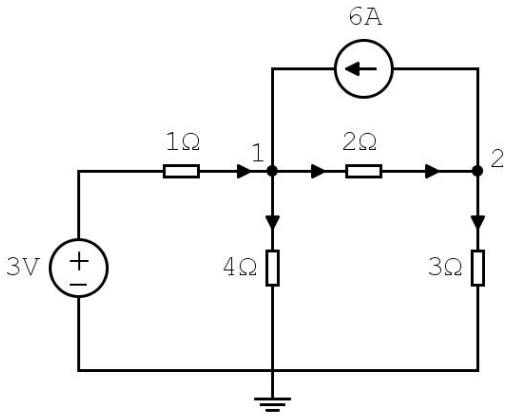

Fig 4

ii) Circle the correct nodal equation at node 2.

(a) $3V_1 - 5V_2 = 36$

(b) $3V_1 - V_2 = 36$

(c) $3V_1 - 5V_2 = -36$

(d) $3V_1 - V_2 = -36$

5) By applying nodal analysis at node v_2 of circuit in Fig 5, find v_1 and v_2.

Copyright © The McGraw-Hill Companies, Inc. Permission required for reproduction or display

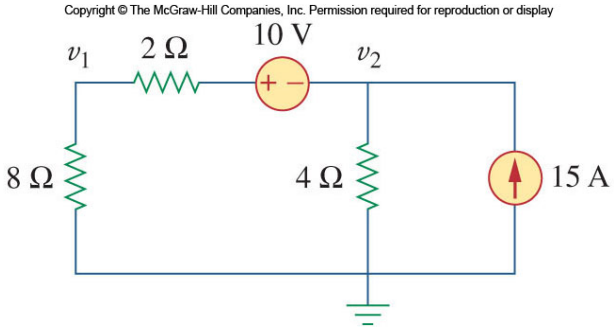

Fig 5

6) For the circuit in Fig 6, obtain the mesh equation at: (No need to solve for variables)

Hint: Assume the voltage across the 4A current source is v

i) Mesh 1 with final form: $a_1*i_1 + a_2*i_2 + a_3*i_3 = 8 - v$

ii) Mesh 2 with final form: $c_1*i_1 + c_2*i_2 + c_3*i_3 = - v$

iii) Mesh 3 with final form: $b_1*i_1 + b_2*i_2 + b_3*i_3 = 0$

Copyright © The McGraw-Hill Companies, Inc. Permission required for reproduction or display

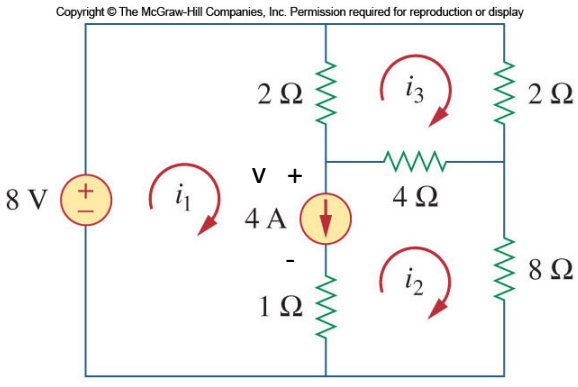

Fig 6