ENGR 12 Assignment 4 Due: next wed

**Part I. Drills -- 1 point each**

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| 1. **Find V1 and V2 using Node Voltage  (V1 = -20 V, V2 = -40 V)** 2. Find V2 and V3 using the Node Voltage Method (V1 = 12V) | 1. Find I1 and I2 using Mesh Current      1. Use Mesh Analysis to find vo      1. Solve for I1, I2 and I3 using Mesh Analysis   http://sub.allaboutcircuits.com/images/00487.png |

**Part II. Assisted Problem Solving – 2 pts each**

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| 6 Solve for Ix using the NV method (SuperNode) | PLAN   1. Va is known at \_\_\_\_\_ volts 2. Vb/Vc form a supernode. Write the node equation for the supernode in terms of Vb, Vc and the two current sources. 3. Determine ix in terms of Vc and the 3 Ohm resistor 4. substitute ix out of your answer for (2) 5. Use KVL to relate Vb, Vc and the 4V source 6. Solve two equations (4) and (5) for Vb, Vc 7. Calculate ix using (3) |
| 7 Use the Mesh Current “SuperMesh” technique to find Vx, the voltage across the 5A current source | PLAN   1. label meshes ia (top), ib (left), ic (right) 2. write the mesh eqn for ia 3. write the mesh eqn for supermesh ib/ic 4. use kcl to relate ib, ic and the 5A source 5. solve equations using matlab/freemat 6. determine the branch current thru the 2Ohm resistor, i2, and the current thru the 1 ohm resistor i1 7. using i1, i2 and KVL, determine Vx |

**Part III. Unassisted Problem Solving – 3 points each**

8) Use either NV or MC to solve for vx  
