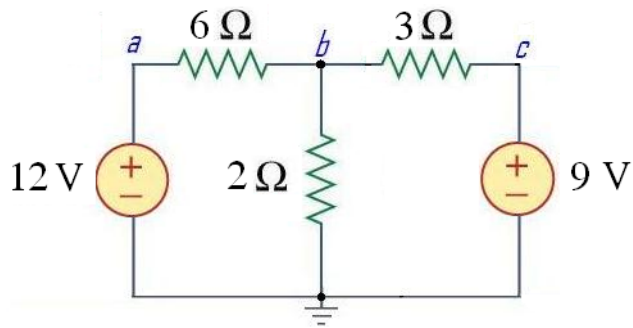


EE301 Nodal Analysis Part I Homework Assignment

1. Given the following circuit:



a. Identify the voltage at each of the three nodes (either as a value or as UNKNOWN if it must be calculated)

$$V_a = \underline{\hspace{2cm}}$$

$$V_b = \underline{\hspace{2cm}}$$

$$V_c = \underline{\hspace{2cm}}$$

b. Write the equations for the three branch currents at node b. DRAW the current arrows corresponding to these equations on the circuit above.

$$I_1 = \underline{\hspace{2cm}}$$

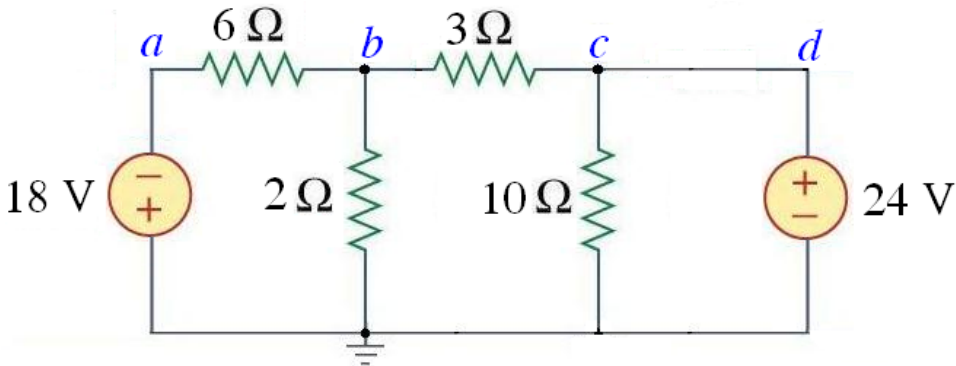
$$I_2 = \underline{\hspace{2cm}}$$

$$I_3 = \underline{\hspace{2cm}}$$

c. Write the resulting Nodal Analysis equation and solve for the unknown voltages.

EE301 Nodal Analysis Part I Homework Assignment

2. Given the following circuit:



a. Identify the voltage at each of the lettered points above (either as a value or as UNKNOWN if it must be calculated)

$$V_a = \underline{\hspace{2cm}}$$

$$V_b = \underline{\hspace{2cm}}$$

$$V_c = \underline{\hspace{2cm}}$$

$$V_d = \underline{\hspace{2cm}}$$

b. Write the equations for the three branch currents at node b. DRAW the current arrows corresponding to these equations on the circuit above.

$$I_1 = \underline{\hspace{2cm}}$$

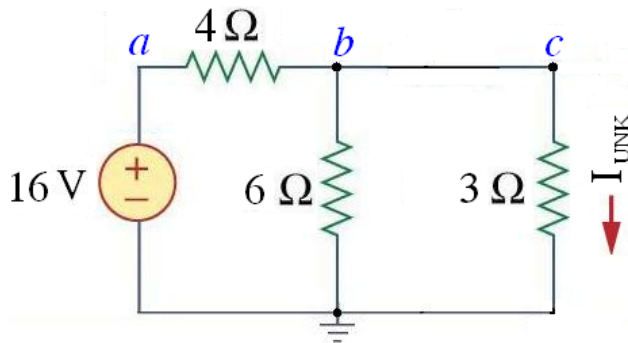
$$I_2 = \underline{\hspace{2cm}}$$

$$I_3 = \underline{\hspace{2cm}}$$

c. Write the resulting Nodal Analysis equation and solve for the unknown voltages.

EE301 Nodal Analysis Part I Homework Assignment

3. Given the following circuit:



a. Identify the voltage at each of the lettered points above (either as a value or as UNKNOWN if it must be calculated)

$$V_a = \underline{\hspace{2cm}}$$

$$V_b = \underline{\hspace{2cm}}$$

$$V_c = \underline{\hspace{2cm}}$$

b. Write the equations for the three branch currents at node b. DRAW the current arrows corresponding to these equations on the circuit above.

$$I_1 = \underline{\hspace{3cm}}$$

$$I_2 = \underline{\hspace{3cm}}$$

$$I_3 = \underline{\hspace{3cm}}$$

c. Write the resulting Nodal Analysis equation and solve for the unknown voltages. Determine the current I_{UNK} .