

# ECE 109L - NODE ANALYSIS - LAB 15

## NODE EQUATIONS - PART I

SUMMER 2007

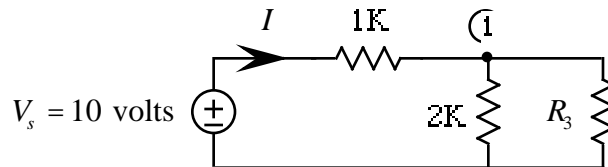
A.P. FELZER

### OBJECTIVE

The objective of this lab is to measure and calculate node voltages and then make use of the results to calculate the other voltages and currents in the circuit

### LAB

1. Given the following circuit



PARTNER 1:  $R_3 = 1K$       PARTNER 2:  $R_3 = 4.7K$

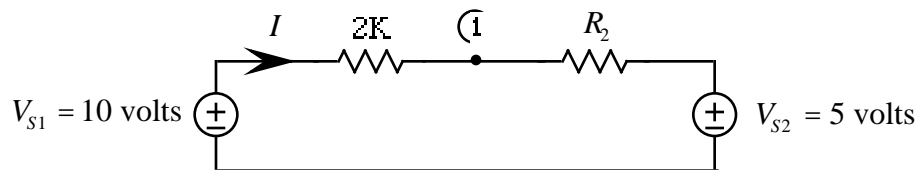
- a. Measure your resistor values. Compare with nominal values
- b. Measure the node voltage  $V_1$
- c. **PreLab** - Write and solve the node equation for  $V_1$ . *Be sure to label this and all node equations as follows*

NODE      NODE EQUATION

①

- d. Compare your calculated and measured values for the node voltage  $V_1$
- e. Make use of your measured  $V_1$  to calculate  $I$
- f. Measure  $I$
- g. Compare your calculated and measured values of  $I$

2. Given the following circuit



PARTNER 1:  $R_2 = 1K$       PARTNER 2:  $R_2 = 4.7K$

- a. Measure your resistor values. Compare with nominal values
- b. Measure the node voltage  $V_1$
- c. **PreLab** - Write and solve the node equation for  $V_1$
- d. Compare your calculated and measured values for the node voltage  $V_1$
- e. Make use of your measured  $V_1$  to calculate  $I$
- f. Measure  $I$
- g. Compare your calculated and measured values of  $I$