

ECE 109L - EQUIVALENT CIRCUITS - LAB 21 THEVENIN'S THEOREM - PART IV

SUMMER 2007

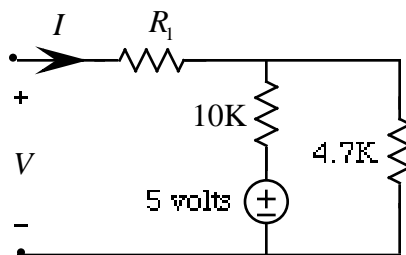
A.P. FELZER

OBJECTIVE

The objective of this Lab is to demonstrate that R_{TH} can be calculated from measurements taken without setting the sources to zero.

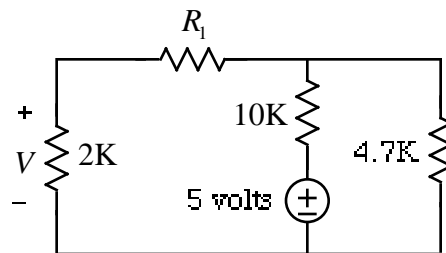
LAB

1. **PreLab** - Use Mathcad to plot 3 cycles of $x(t) = 4\cos(2 \cdot 4000t)$
2. Given the following resistor circuit

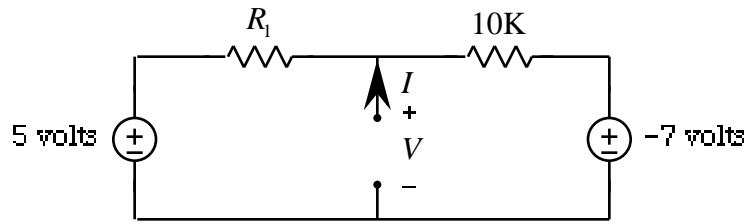


PARTNER 1: $R_1 = 2K$ PARTNER 2: $R_1 = 4.7K$

- a. Measure your resistor values. Compare with nominal values
- b. Take measurements for calculating R_{TH} without setting the 5 volt source to zero. Draw corresponding circuits
- c. Make use of your measurements in part (b) to calculate R_{TH}
- d. Now measure R_{TH} with the 5 volt source set to zero
- e. Compare your measured and calculated values of R_{TH}
- f. Draw your circuit's Thevenin Equivalent circuit
- g. Use your Thevenin Equivalent circuit from part (f) to calculate V when a 2K resistor is connected to the terminals as follows



- h. Measure V for your circuit in part (g)
 - i. Compare your measured and calculated values of V
2. Repeat Problem (1) for the following circuit



PARTNER 1: $R_1 = 4.7K$ PARTNER 2: $R_1 = 10K$