

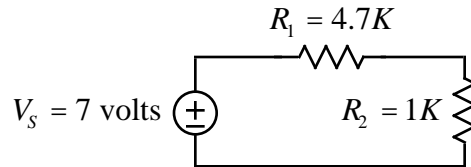
# ECE 109L LAB REPORT TEMPLATES

WINTER 2007

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## COMPARISON OF RESISTOR VALUES

Circuit Being Analyzed And Measured



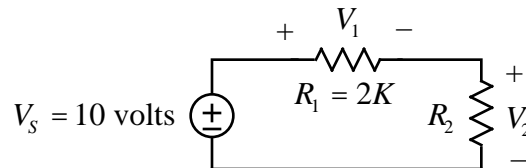
Comparison Of Nominal And Measured Resistor Values

RESISTOR	NOMINAL VALUE	MEASURED VALUE	% DIFFERENCE
$R_1$	4.7K	4.8K	2.1%
$R_2$	1K	990	1%

Both resistors are within their nominal values.

## TABLES OF MEASURED AND CALCULATED VALUES

Circuit Being Measured



Measured Voltages

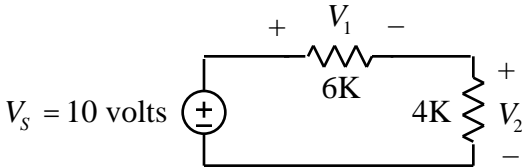
$R_2$ (K )	$V_1$ (volts)	$V_2$ (volts)
0	10	0
1	6.8	3.2
2	5.1	4.9
3	3.9	6.1
4	3.3	6.7

## CALCULATING OF VALUES

$$V_1 = R_1 I_1 = 1000(2 \times 10^{-4}) = 2 \text{ volts}$$

**COMPARISON OF CALCULATED AND MEASURED VALUES**

Circuit Being Analyzed And Measured



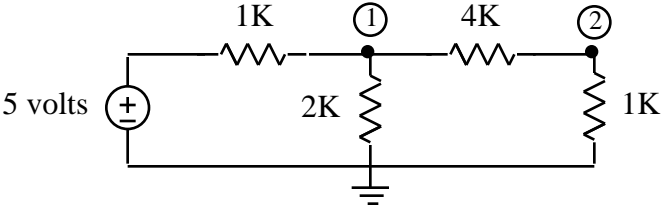
Comparison Of Calculated And Measured Voltages

Variable	Calculated	Measured	% Difference
$V_1$	6 volts	5.9 volts	1.7%
$V_2$	4 volts	4.1 volts	2.5%

The calculated and measured values are reasonably close.

**NODE EQUATIONS**

Circuit Being Analyzed



Node Equations

<u>NODE</u>	<u>NODE EQUATION</u>
①	$\frac{V_1 - 5}{1000} + \frac{V_1}{2000} + \frac{V_1 - V_2}{4000} = 0$
②	$\frac{V_2 - V_1}{4000} + \frac{V_2}{1000} = 0$