

# Experiment 3

# Voltage Dividers And Thévenin's Theorem

## Post-Lab Report

### Voltage Divider Design

Design a voltage-divider circuit, similar to that shown in Fig. B.1, for a 6-V regulated power supply which must feed a 3 mA load at 4.4V. The bleeder current should be 2 mA (approximately). Draw the circuit diagram, showing all values of voltage, current, and resistance.

Measured	
$R_1$	
$R_2$	
$R_L$	

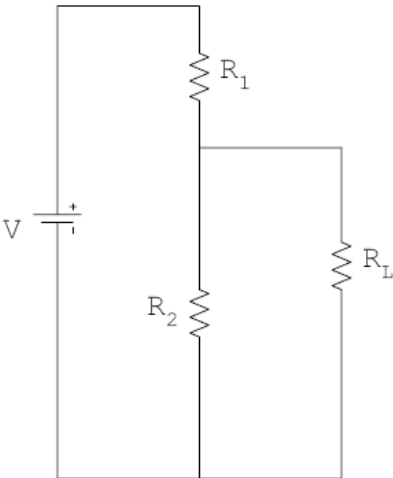


Fig. B.1

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Question 1:

Refer to Table A.1. How does the load current vary with the load resistance  $R_L$ ? Explain why

Question 2:

Refer to Table A.1. What is the effect on bleeder current  $I_1$  as the load current increases? Explain why.

Question 3:

What is the effect on the voltages  $V_A$  and  $V_B$  at the divider taps as the load current increases? Explain why

**Question 4:**

Compare the computed values in Table A.1 with the measured values. Explain any differences.

**Question 5:**

Compare the measured and theoretical values obtained for  $V_{TH}$  and  $R_{TH}$  of Fig. C.1. Explain any differences in the values

**Question 6:**

With the 2.2 KW resistor in branch CD of Fig. C.1 opened, calculate  $V_{TH}$  and  $R_{TH}$  of the modified circuit. Explain any differences with previous values.