

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	

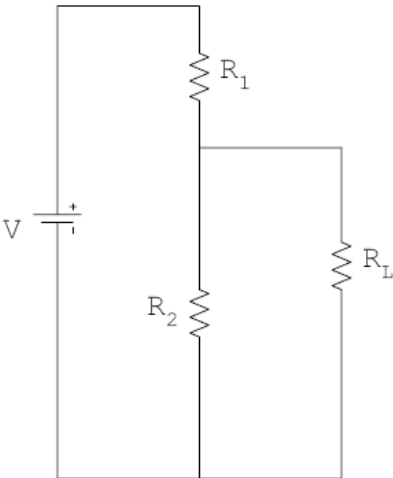


Fig. B.1

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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.