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Experiment 3:
Voltage Dividers and Thevénin's Theorem

Pre-Lab Report

A. Voltage divider circuits

Compute and record in the Table below, the bleeder current I_1, the voltages V_B and V_A, and the load resistance R_L for each of the load conditions in part A.

Computed Values					
V(V)	I_L (mA)	I_1 (mA)	V_B (V)	V_A (V)	R_L (Ω)
10	0	2.77	6.648	3.324	infinite(no loa
10	2	2.11	5.064	2.532	2532
10	4	1.44	3.456	1.728	864
10	6	0.77	1.848	0.924	308

B. 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. Show your computations.

Computed Values	
R_1	0.32K
R_2	2.2K
R_L	1.46K

C. Thevénin's Theorem

Calculate the Thévenin voltage V_{TH} and the Thévenin resistance R_{TH} for the circuit of Fig. C.3.

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Computed Values	
V_{TH}	5.4319 V
R_{TH}	2.3895K

With the Thévenin values just found, calculate the load voltage V_L across the load resistance R_L, for R_L = 1 KΩ and R_L =4.7 KΩ using the circuit of Fig. C.4.

Computed Values	
	V_L
1 KΩ	1.602 V
4.7 KΩ	3.599 V

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