

Experiment 3: Voltage Dividers and Thevenin's Theorem

Pre-Lab Report

A. Voltage divider circuits

Compute and record in the Table below, the bleeder current I_L , 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_L (mA)	V_B (V)	V_A (V)	R_L (Ω)
10	0				
10	2				
10	4				
10	6				

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	
R_2	
R_L	

C. Thevenin'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}	
R_{TH}	

With the Thévenin values just found, calculate the load voltage V_L across the load resistance R_L , for $R_L = 1\text{ K}\Omega$ and $R_L = 4.7\text{ K}\Omega$ using the circuit of Fig. C.4.

Computed Values	
	V_L
$1\text{ K}\Omega$	
$4.7\text{ K}\Omega$	