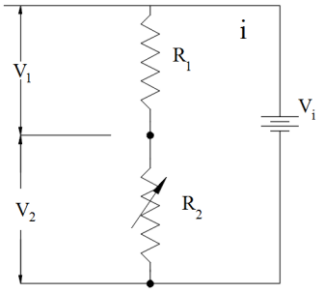
King Abdulaziz University
Faculty of Engineering
Mechanical Engineering

MEP 365
Thermal Measurements
Fall 2022, HW05
HW. on Circuit Wizard

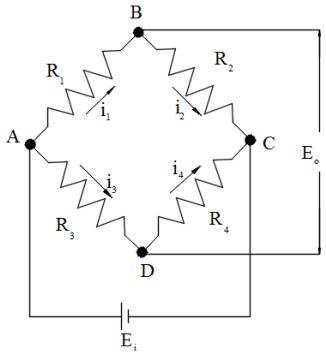
1-Use the Circuit Wizard-student edition version software to sketch the voltage divider circuit. Prepare a table for your results as shown below. For V_i=9 V, R_1=900 Ω, and R_2 of your choice between 100 and 5000 Ω . Calculate manually the current i, V_1 and V_2.

Case	V_i	R_1	R_2 (Ω)	i	V_1	V_2
1	9	900				
2	9	900				
3	9	900				
4	9	900				



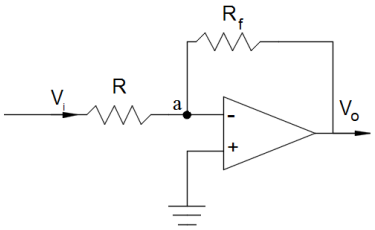
2-Sktech the Wheatstone bridge circuit on circuit wizard. Prepare a table and find the output voltage E_o in each case. Select R_3 to be between 50 and 200 Ω, and fill the table below

Case	R_1	R_2	R_3	R_4	E_i (V)	E_o
1	120	120		120	5	
2	120	120		120	5	
3	120	120		120	5	
4	120	120		120	5	



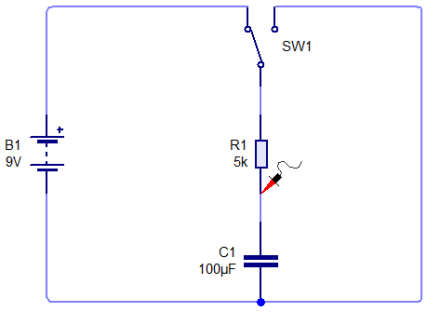
3-Sktech a circuit for inverting OP-AM (Inverting Operational Amplifier) and complete the following table of your choices. What do you conclude?

Case	R	R_f	V_i	V_o (V)
1				-5
2				-15
3				-2
4				-0.5



4- Create an RC time circuit as shown. Complete the table below of your choices

Case	V_i	R_1	C_1	time constant (τ=RC)
1				0.1 s
2				1 s
3				10 s



Attach the variation of capacitor voltage with time for the case of charging and discharging the capacitor, with τ=17 seconds

5-By searching the internet and using Circuit Wizard construct a simple circuit using one or two transistors. Explain how the circuit works, and where the circuit is used practically.