CSE 233 Lab-4
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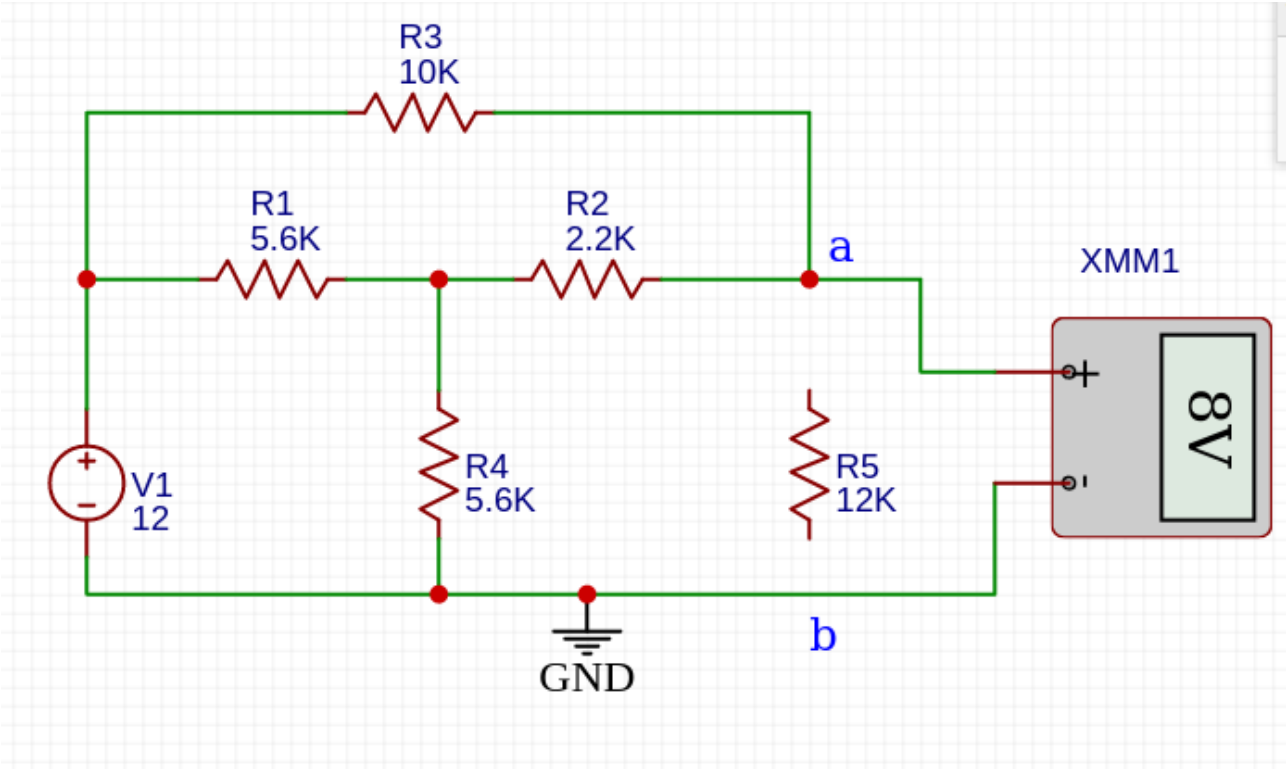
Why Thevenin and Norton Theorems are used in the circuits ?

Thevenin and Norton Theorems used circuits to simplify. If we don't want to calculate and deal with a complex part of the circuit. We apply Thevenin and Norton theorems.

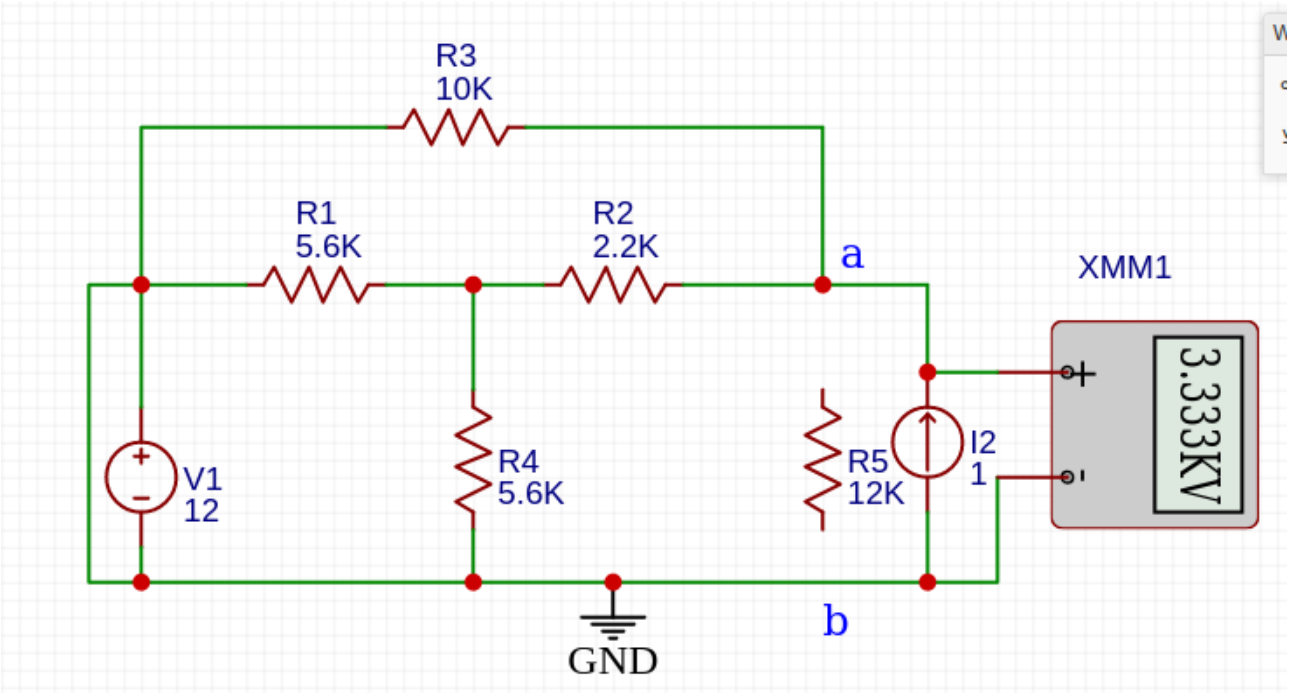
How Norton current and Thevenin voltage are found in a circuit ?

We find the R equivalent between nodes by making all independent sources off. We calculate or measure the voltage between 2 open nodes. This is thevenin voltage. Then calculate current using voltage or mesaure current between 2 open nodes. This is norton current.

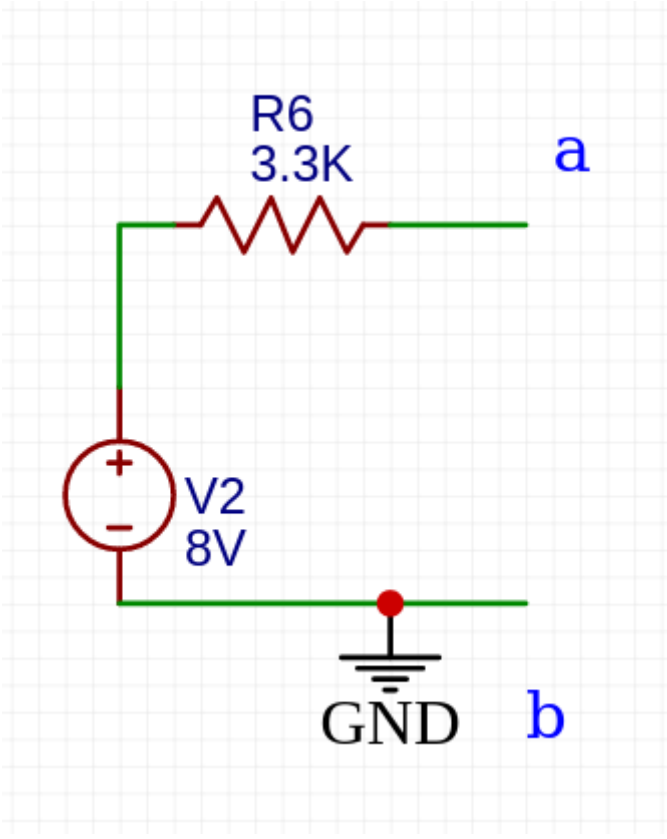
R_L for the maximum power transfer is 3.3k ohm.



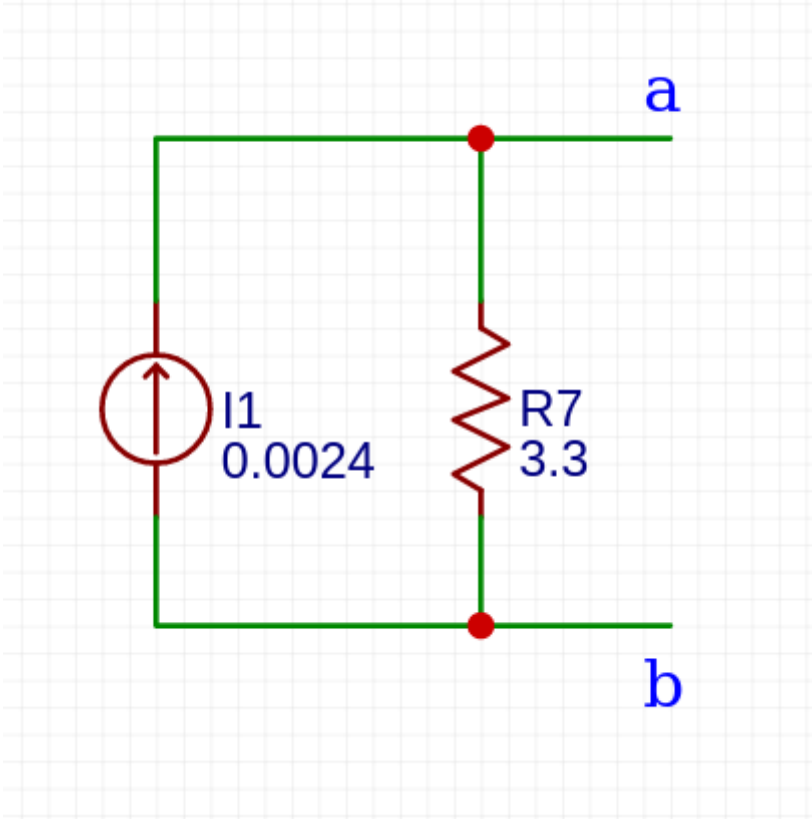
V_{TH}



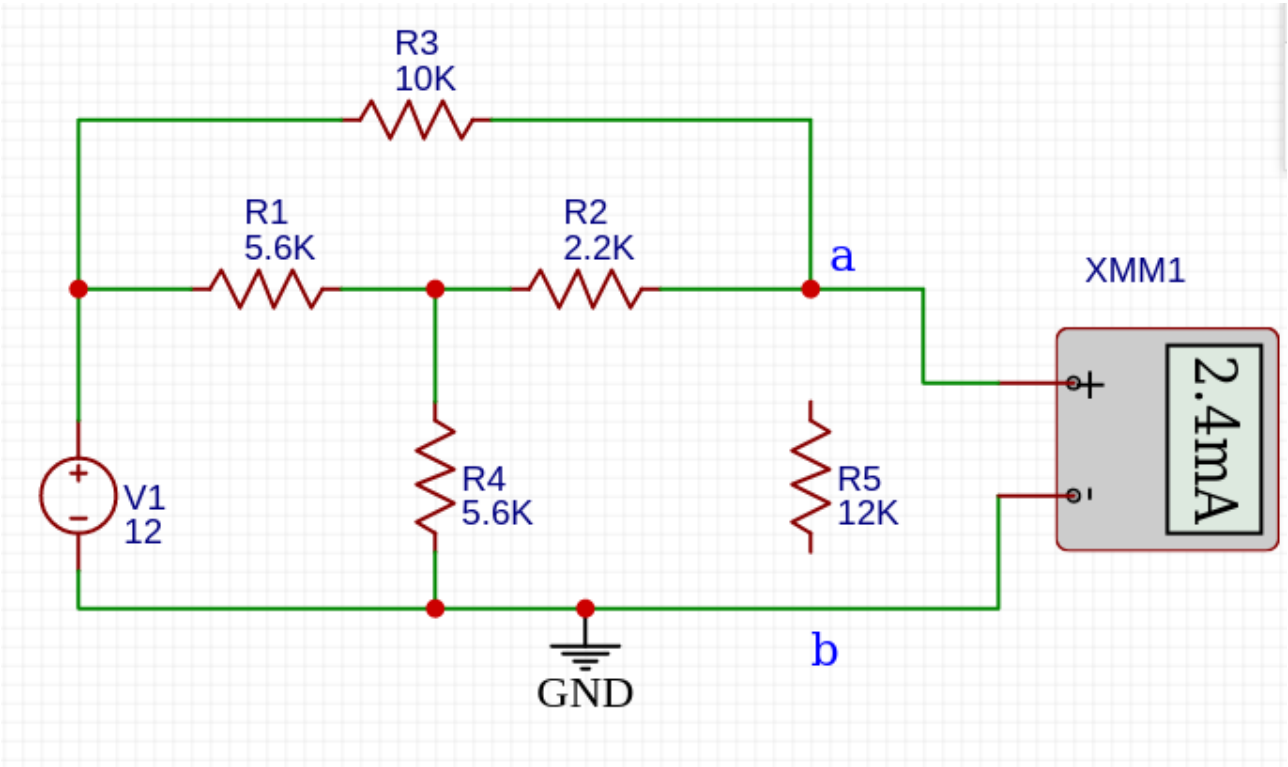
R_{TH} (3.3k ohm)



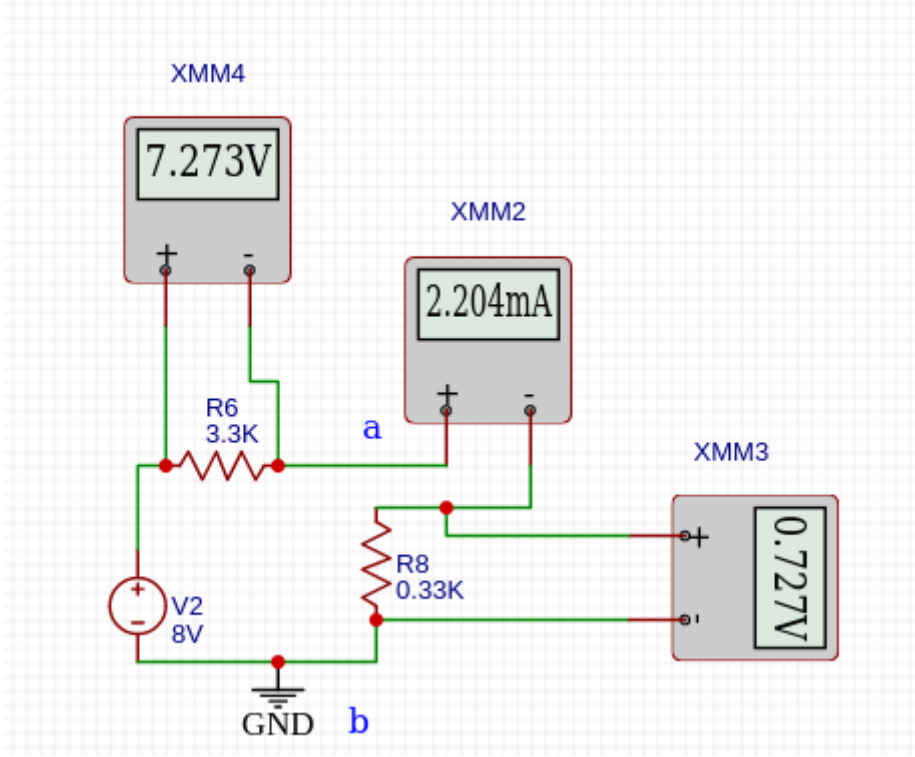
Thevenin Equivalent Circuit



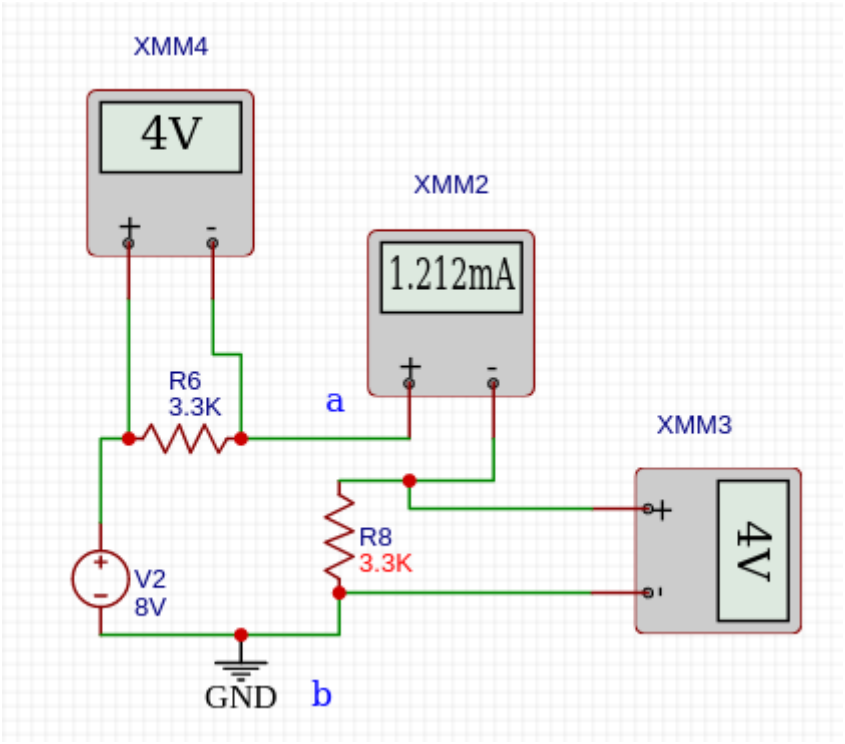
Norton Equivalent Circuit



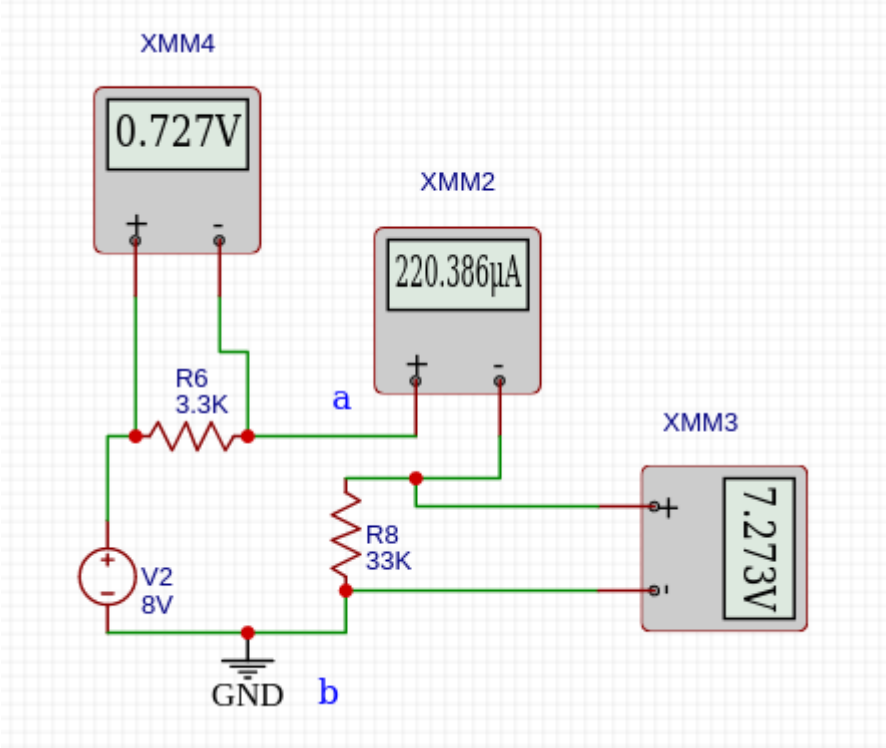
I_N Norton short circuit current (equivalent to current in norton circuit)



$R_L = 0.1R_{Th}$



$R_L = 0.1R_{Th}$



$R_L = 10R_{Th}$

Load Res	Meas I_{RL} (mA)	Meas V_{RL} (V)	Meas P_{RL} (mW)	Meas P_{Rth} (mW)	Calc I_{RL} (mA)	Calc V_{RL} (V)	Calc P_{RL} (mW)	Calc P_{Rth} (mW)
$R_L = 0.1R_{Th}$					2.204	0.727	1.6	16
$R_L = R_{Th}$					1.212	4	4.848	4.848
$R_L = 10R_{Th}$					0.220386	7.273	1.6	0.16