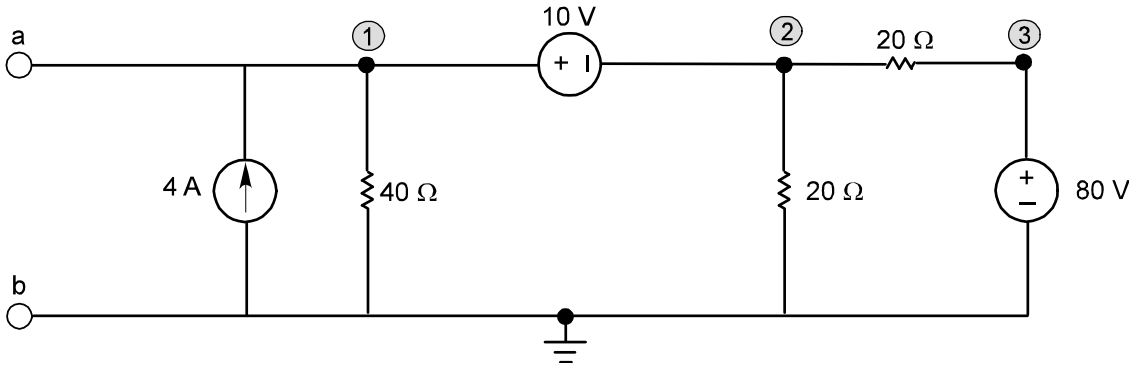
Homework Set #13
DUE Friday, April 3, 2017

1. For the circuit shown below:

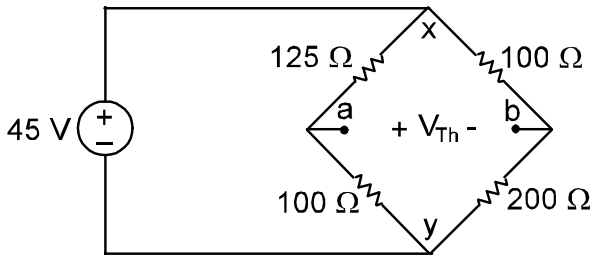


a) Write and solve the nodal equation needed to determine V_1.

b) De-activate the sources and determine the resistance seen by terminals a—b, when they are open-circuited.

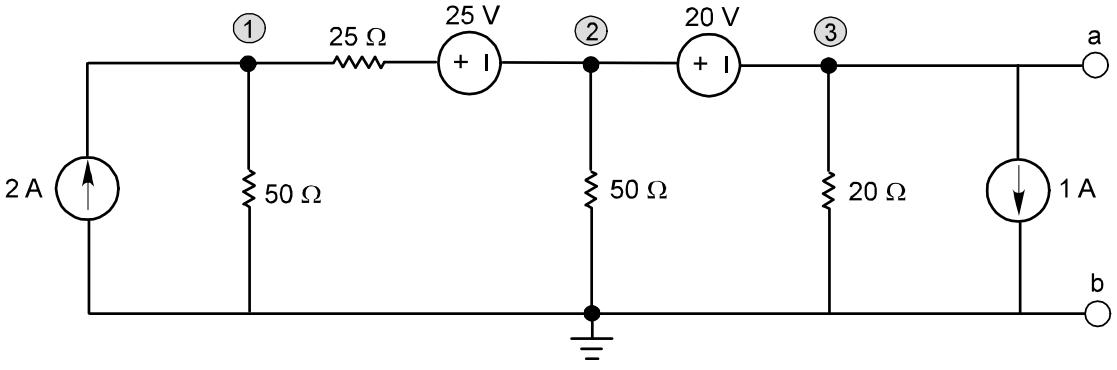
c) Draw the Thevenin Equivalent at terminals a—b.
(NOTE: you can use source transforms to check this result.)

2. Determine the Thevenin equivalent circuit across terminals a—b for the Wheatstone Bridge shown below:



(NOTE: When you de-activate the 45 V source x & y become the same node, so some resistors are in parallel when you look into a-b.)

3. For the circuit shown below:



a) Use source transforms to determine the Thevenin Equivalent at terminals a—b.
(i.e. Draw the Thevenin Equivalent looking into terminals a—b.)

b) Assume the answer to part (a) is V_{Th} = 12 V and R_{Th} = 8 Ω (NOTE: this is ***not*** the answer to part (a)) and determine the power dissipated in a 127.5 Ω load resistor connected across a—b.