

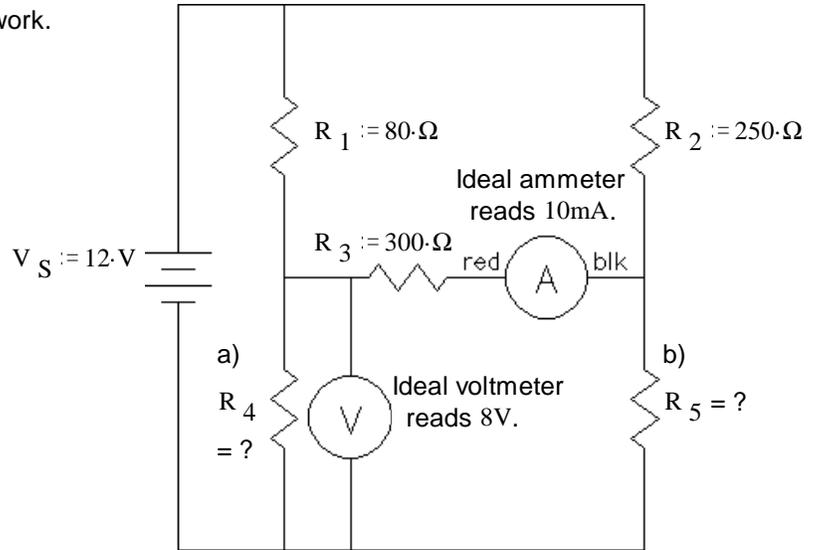
ECE 2210/00 Exam 1 given: Fall 11

(The space between problems has been removed.)

1. (28 pts) Find the values below. Show your work.

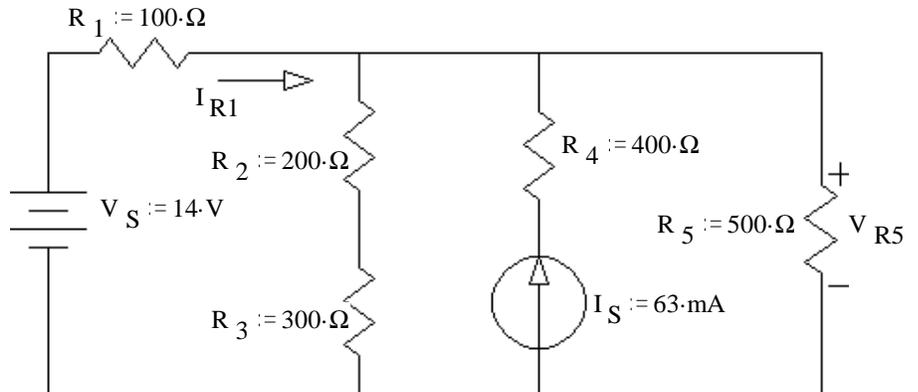
Note: feel free to show answers & work right on the schematic

- a) $R_4 = ?$
- b) $R_5 = ?$
- c) $P_S = ?$

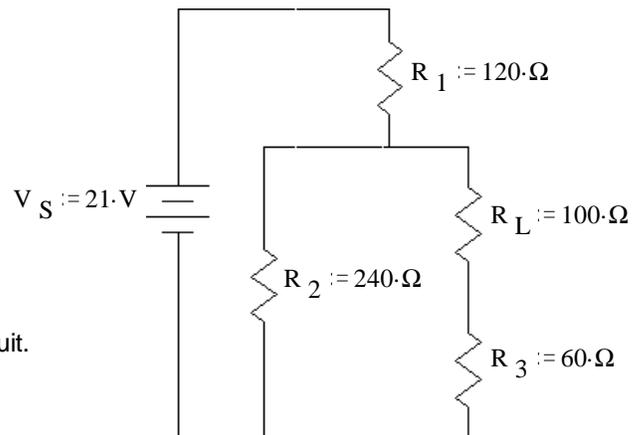


2. (25 pts) Use the method of superposition to find V_{R5} and I_{R1} .

Be sure to redraw the circuit as needed and to clearly show and **circle** your intermediate results.



3. (19 pts) a) Find and draw the Thévenin equivalent of the circuit shown. The load resistor is R_L .

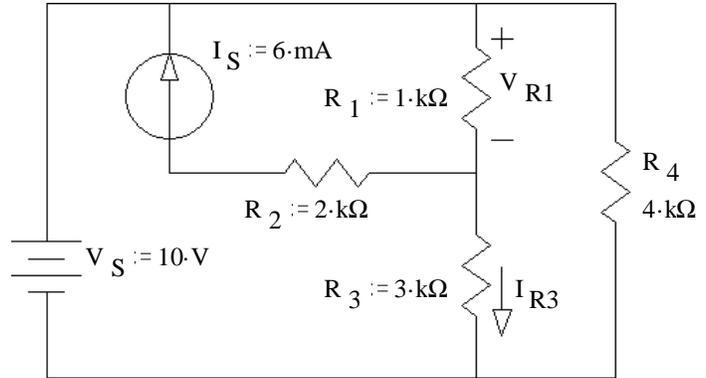


b) Find the load current using your Thévenin equivalent circuit.

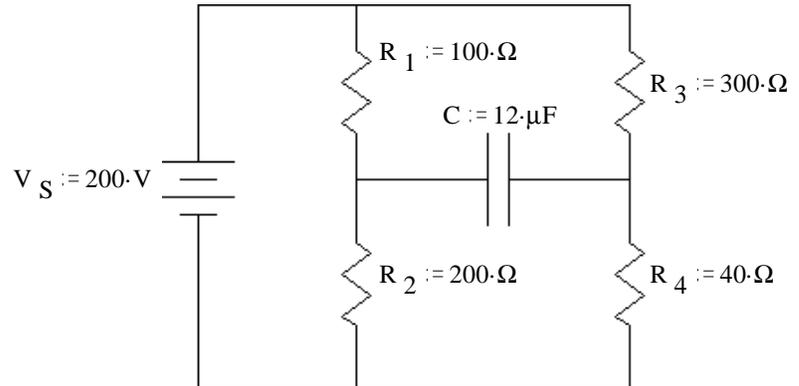
c) Choose a different value of R_L so as to maximize the power dissipated in R_L . Find that maximum power

4. (18pts) Use nodal analysis to find the voltage V_{R1} and the current I_{R3} .

You **MUST** show all the steps of nodal analysis work to get credit, including drawing appropriate symbols and labels on the circuit shown.



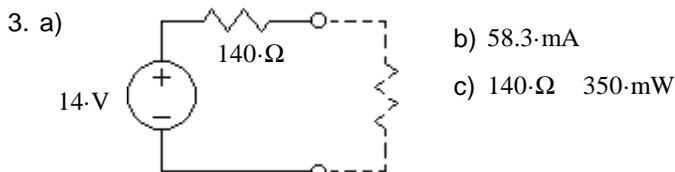
5. (10 pts) This circuit has been hooked up for a long time. Find the voltage across the capacitor and the energy stored in the capacitor.



Answers

1. a) $200\cdot\Omega$ b) $131.6\cdot\Omega$ c) $936\cdot\text{mW}$

2. $14.5\cdot\text{V}$ $-5\cdot\text{mA}$



4. $7\cdot\text{V}$ $1\cdot\text{mA}$

5. $109.8\cdot\text{V}$ $72.3\cdot\text{mJ}$