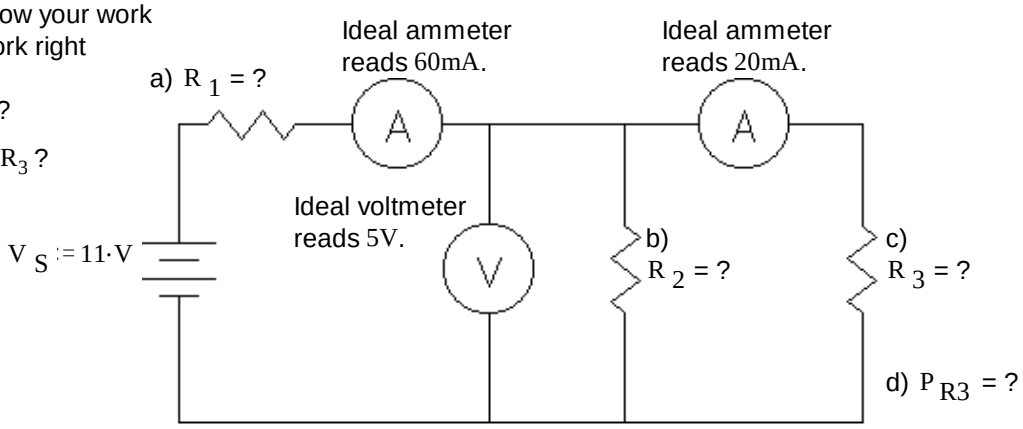
ECE 2210/00 Exam 1 given: Spring 19 (The space between problems has been removed.)

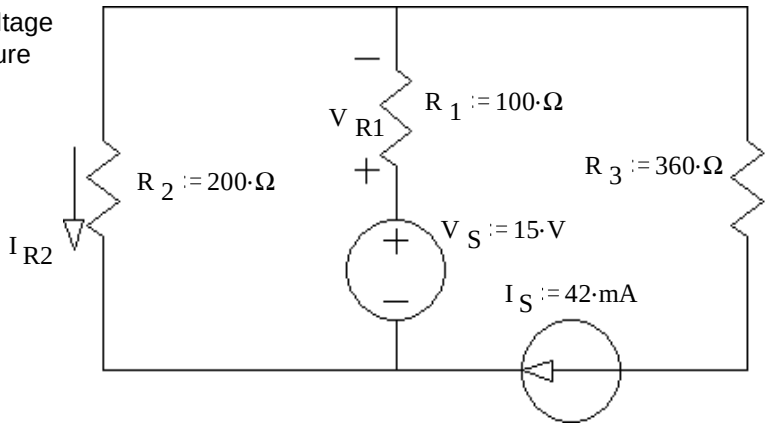
Closed Book, Closed notes, Calculators OK, Show all work to receive credit

Circle answers, show units, and round off reasonably

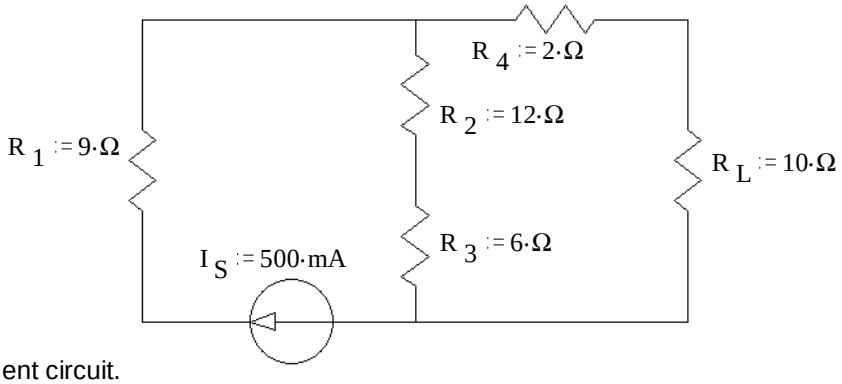
1. (25 pts) Find the resistor values. Show your work
   Note: feel free to show answers & work right on the schematic
   a) R_1 = ? b) R_2 = ? c) R_3 = ?
   d) How much power is dissipated by R_3 ?
   P_{R3} = ?



2. (25 pts) Use the method of superposition to find the voltage across R_1 (V_{R1}) and the current through R_2 (I_{R2}). Be sure to clearly show and **circle** your intermediate results.



3. (25 pts) a) Find and draw the Thévenin equivalent of the circuit shown. The load resistor is R_L.

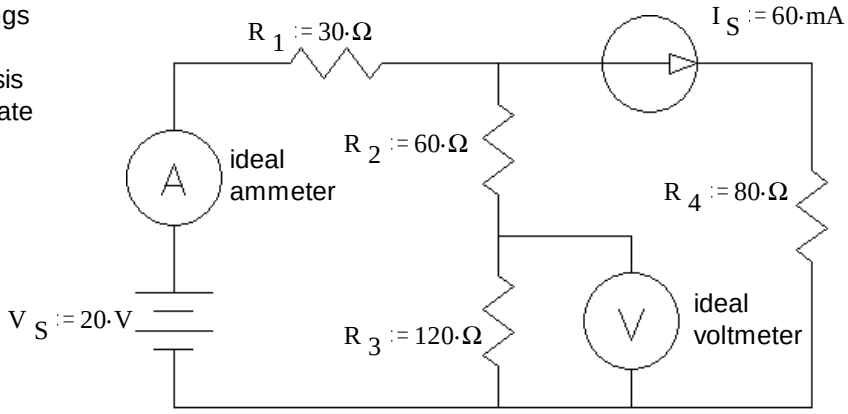


b) Find the load current using your Thévenin equivalent circuit.

c) Find and draw the Norton equivalent of the same circuit.

d) Find the load voltage using your Norton equivalent circuit.

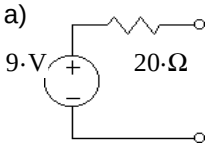
4. (25 pts) Use nodal analysis to find the readings of the two ideal meters.
You **MUST** show all the steps of nodal analysis work to get credit, including drawing appropriate symbols and labels on the circuit shown.



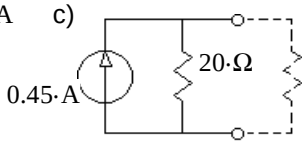
Answers

1. a) 100·Ω b) 125·Ω c) 250·Ω d) 0.1·W

3. a)



b) 300·mA c)



d) 3·V

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2. 36·mA 7.8·V

4. a) 10.4·V b) 147·mA