ECE 2210/00 Exam 1 given: Spring 11 (The space between problems has been removed.)

Suggestion: Do the last problem first. It's easy.

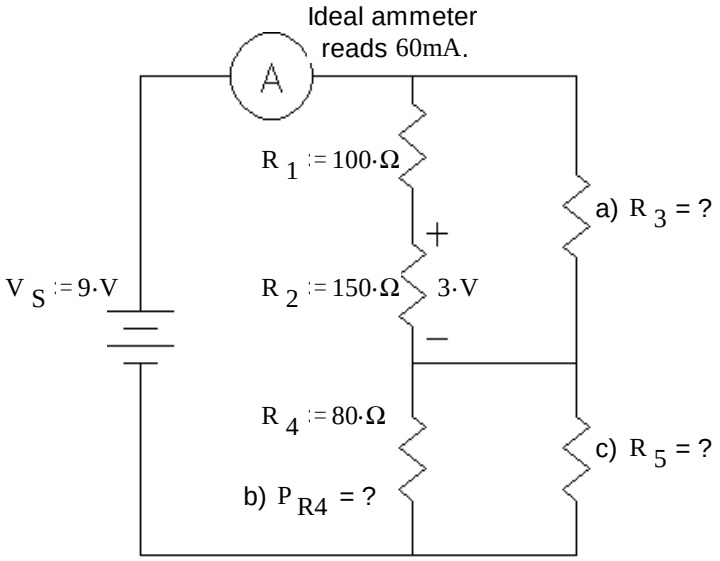
1. (26 pts) Find the values below. Show your work.

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

   a) R_3 = ?

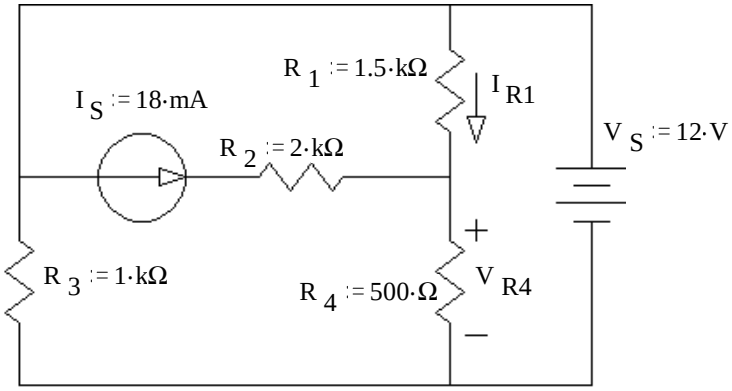
   b) P_{R4} = ?

   c) R_5 = ?

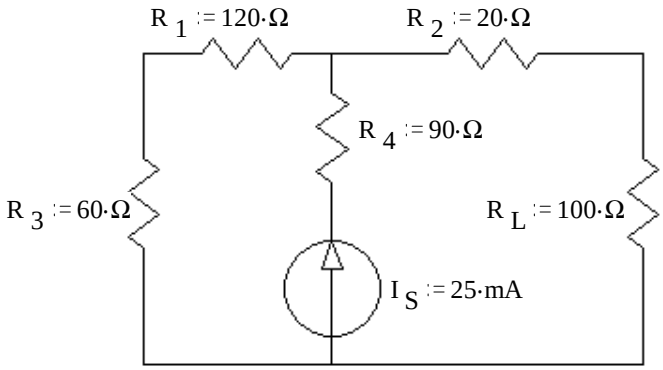


2. (22 pts) Use the method of superposition to find V_{R4} and I_{R1}.

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



3. (21 pts) a) Find and draw the Thévenin equivalent of the circuit shown. The load resistor is R_L.

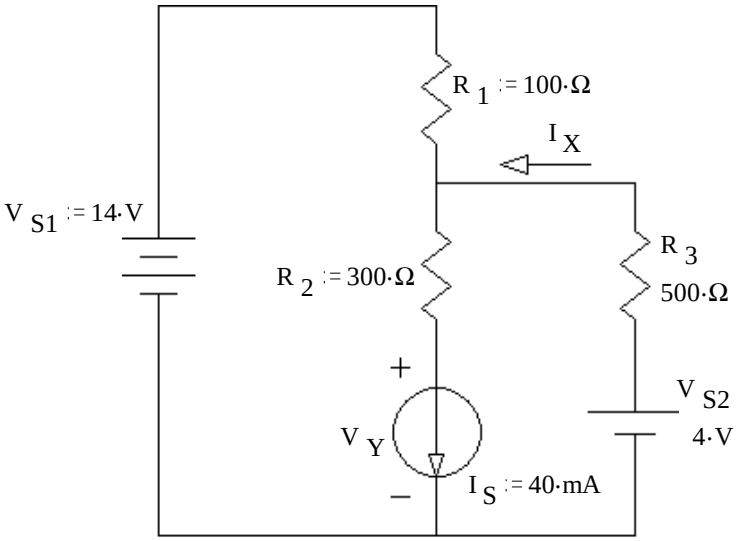


   b) Find the load current using your Thévenin equivalent circuit.

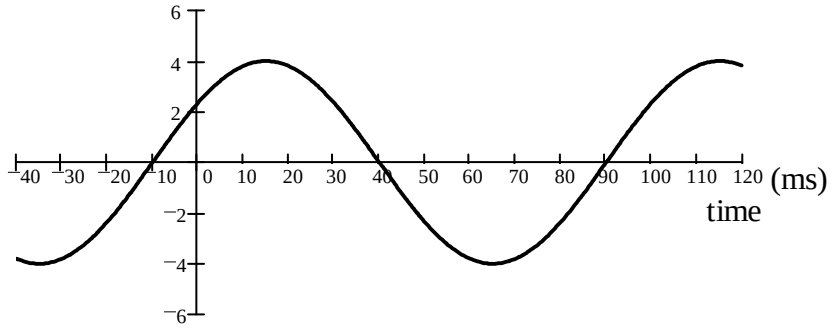
   c) Choose a different value of R_L so as to maximize the power dissipated in R_L. Find that maximum power

4. (23 pts) Use nodal analysis to find the voltage V_Y and the current I_X. **ECE 2210/00 Exam 1 Spring 11 p2**

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



5. (8 pts) For the waveform shown, find the phase angle in degrees.

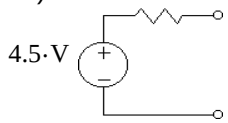


Answers

1. a) 125·Ω b) 200·mW c) 400·Ω

2. 9.75·V 1.5·mA

3. a) 200·Ω



b) 15·mA

c) 200·Ω

25.3·mW

5. -54°

ECE 2210 / 00 Midterm #1 Arn Stolp

Name _____

Scores:

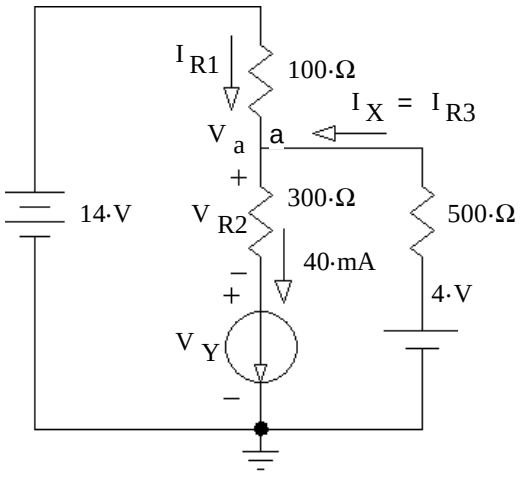
Pages 1&2 _____ of a possible 48 pts

Pages 3&4 _____ of a possible 44 pts

Page 5 _____ of a possible 8 pts

Total _____ of a possible 100 pts

4. 14·V



$V_Y := -3 \cdot V$ $I_X := -10 \cdot mA$