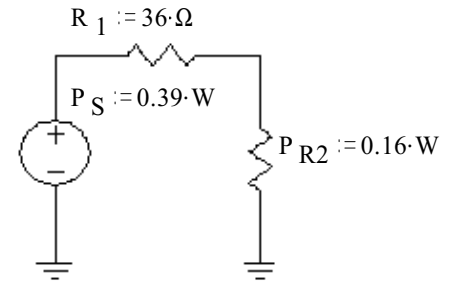


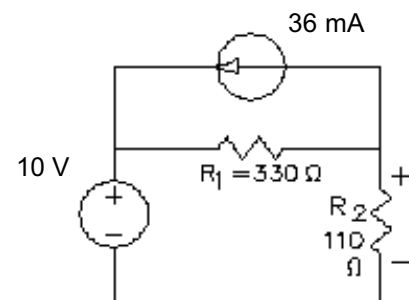
EE1050/60 Exam 1 given: Spring 00 (The space between problems has been removed.)

1. (23 pts) The source in the circuit shown supplies 0.39 W of power. R_2 dissipates 0.16 W. Find all the missing values in the table below and fill it in.



	Voltage across V	Current through I	Power P	Resistance R
Source			$P_S := 0.39 \cdot W$	N / A
R_1				$R_1 := 36 \cdot \Omega$
R_2			$P_{R2} := 0.16 \cdot W$	

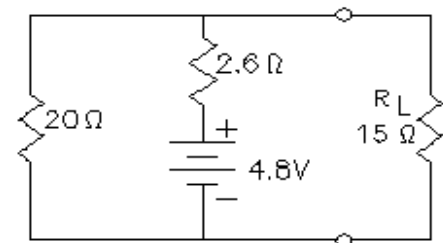
2. (16 pts) Use the method of superposition to find the voltage across R_2 . Be sure to clearly show and **circle** your intermediate results.



3. a) (11 pts) Find and draw the Thévenin equivalent of the circuit shown. The load resistor is R_L .

b) (7 pts) Find and draw the Norton equivalent of the same circuit.

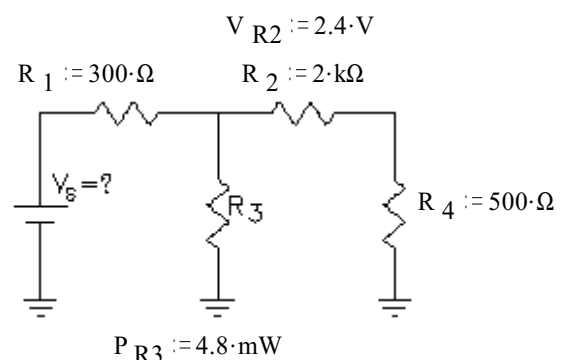
c) (4 pts) Find the load current using your Thévenin equivalent circuit.



4. (18 pts) In the circuit shown the voltage across R_2 is 2.4 V and the power dissipated by R_3 is 4.8 mW.

a) What must V_S be?

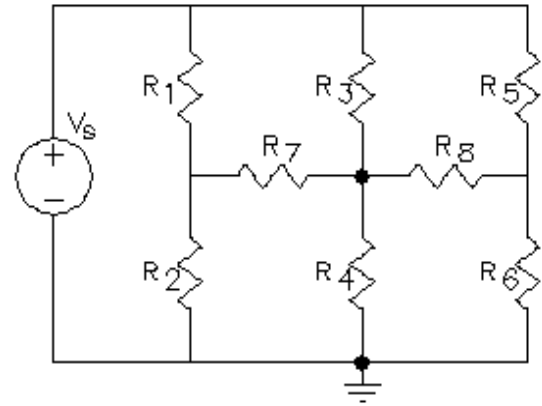
b) What is the value of R_3 ?



EE1050/60 Exam 1 Spring 00 p2

5. (21 pts) To analyze circuit shown requires multiple equations. I have found one equation, using nodes I haven't labeled. Show the nodes I used on the schematic as well as those you define. Find as many other equations as you would need to analyze the entire circuit. Just show and circle these equations, do not attempt to solve them.

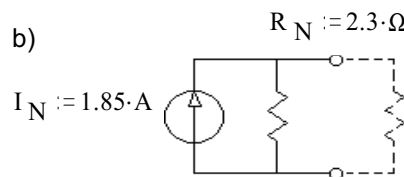
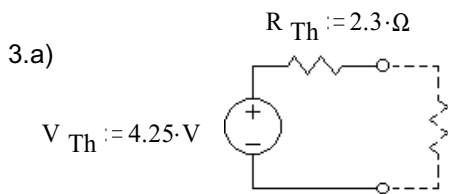
$$\frac{V_s - V_a}{R_1} = \frac{V_a}{R_2} + \frac{V_a - V_b}{R_7}$$



Answers

	Voltage across V	Current through I	Power P	Resistance R
Source	$V_S := 4.88 \cdot V$	$I := 0.08 \cdot A$	$P_S := 0.39 \cdot W$	N / A
R_1	$V_{R1} := 2.88 \cdot V$	$I = 0.08 \cdot A$	$P_{R1} := 0.23 \cdot W$	$R_1 := 36 \cdot \Omega$
R_2	$V_{R2} := 2 \cdot V$	$I = 0.08 \cdot A$	$P_{R2} := 0.16 \cdot W$	$R_2 := 25 \cdot \Omega$

2. $2.5V - 2.97V = -0.47V$



c) 0.246A

4.a) 3.84V b) 1875Ω

EE 1050 / 60 Midterm #1

February 14, 2000
Arn Stolp

5. $\frac{V_a - V_b}{R_7} + \frac{V_s - V_b}{R_3} = \frac{V_b}{R_2} + \frac{V_b - V_c}{R_8}$

$$\frac{V_s - V_c}{R_5} + \frac{V_b - V_c}{R_8} = \frac{V_c}{R_6}$$

Name _____

Scores:

Page 1 _____ of a possible 39 pts
 Page 2 _____ of a possible 22 pts
 Page 3 _____ of a possible 18 pts
 Page 4 _____ of a possible 21 pts