ET 110 – Circuit Analysis

Homework 5 – Basic laws, series, parallel, series-parallel circuit

Student's Name: _____

Instructions:

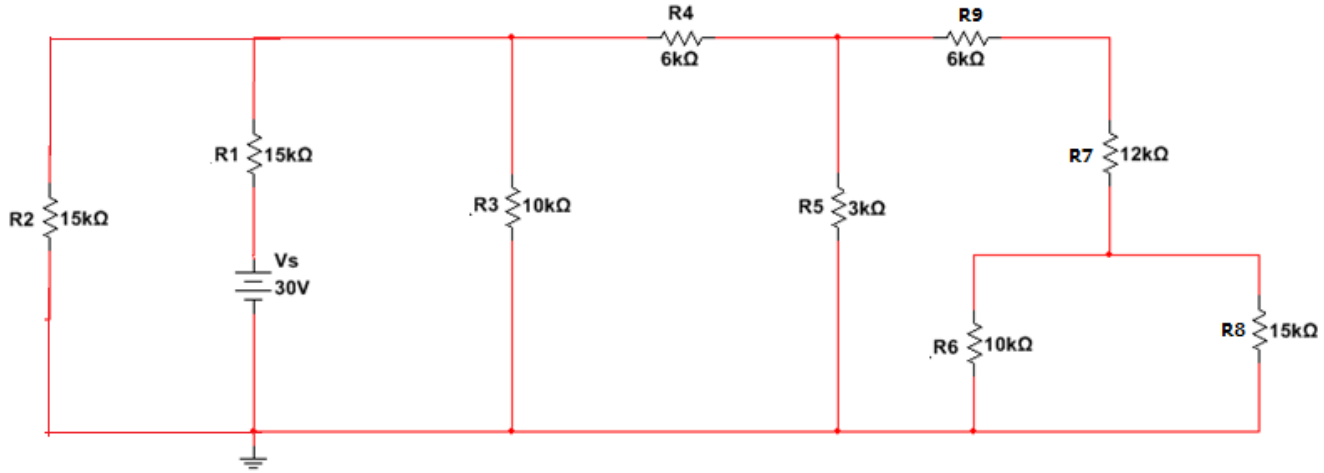
- Due date: _____
- Total of 15 extra points
- YOU HAVE TO SHOW ALL WORK IN ORDER TO RECEIVE FULL CREDIT
- All answer must be in engineering notation rounded off to the hundredth

---------- **Homework Starts Here** ----------

Multiple choices: circle only ONE answer

Question 1

For the following network: (0.3 pts each)



Which resistor will have ***30 V*** drop?

a. None of them
b. R5
c. R6
d. R3
e. R1
f. R2

Which of the following resistors share ***the same current***?

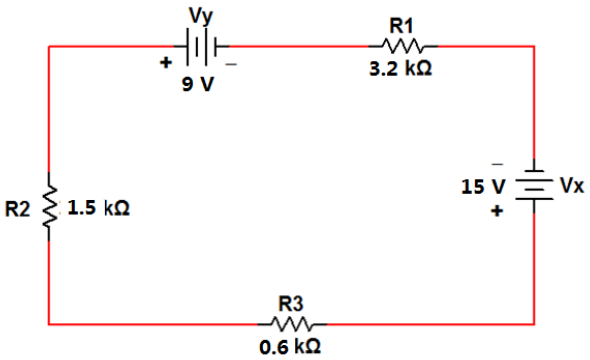
a. R8 and R9
b. R2 and R3
c. R1 and R2
d. R3 and R4
e. R9 and R7
f. None of them

Which of the following resistors share ***the same voltage***?

a. R1 and R2
b. R6 and R8
c. R7 and R8
d. R5 and R7
e. R1 and R3
f. None of them

Question 2

For the following circuit, solve for:



a. Current source (0.8 pts)_____

b. Indicate the direction of the current flow (clockwise or counterclockwise) (0.2 pts)_____

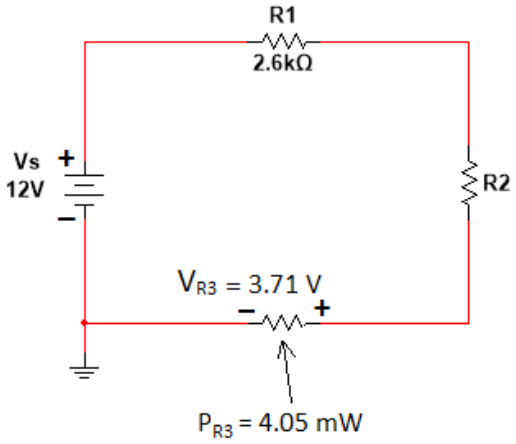
c. Voltage drop in R_1, V_{R1} , and indicate the polarity (+ , -) (0.4 pts)_____

d. Voltage drop in R_2, V_{R2} , and indicate the polarity (+ , -) (0.4 pts)_____

e. Voltage drop in R_3, V_{R3}, and indicate the polarity (+ , -) (0.4 pts)_____

Question 3

For the following circuit, solve for:



a. Current source (0.6 pts) _____

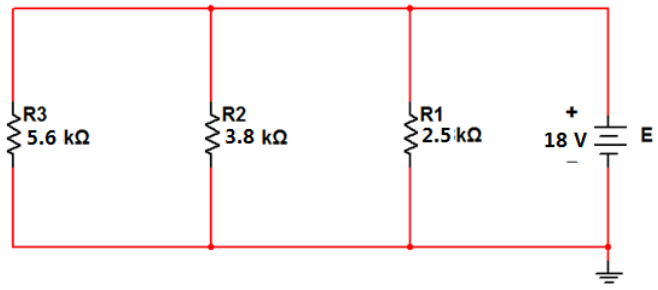
b. Indicate the direction of the current flow (clockwise or counterclockwise) (0.2 pts)_____

c. Voltage across R_1 (with polarity)(0.4 pts) _____

d. Resistor R_2, (0.6 pts)_____

Question 4

For the following circuit, solve for:



a. Total resistance, R_T (0.6 pts)_____

b. The current through R_1 , I_{R1}(0.3 pts) _____

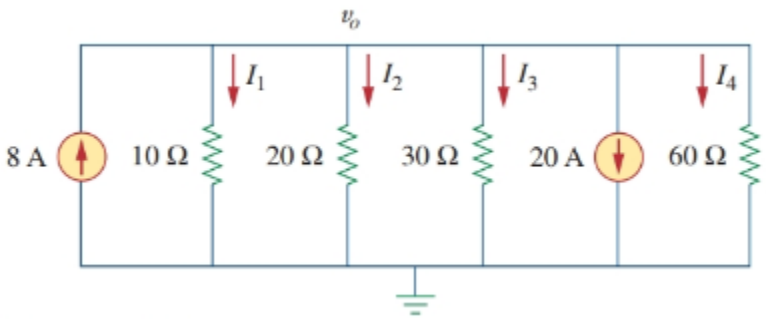
c. The current through R_2, I_{R2} (0.3 pts) _____

d. The current through R_3, I_{R3} (0.3 pts) _____

e. The total current, I_T (0.3 pts) _____

Question 5

For the following circuit, find:



a. (0.6 pts) Total resistance _____

b. (0.3 pts) Total current source_____

c. (0.3 pts) Total voltage source_____

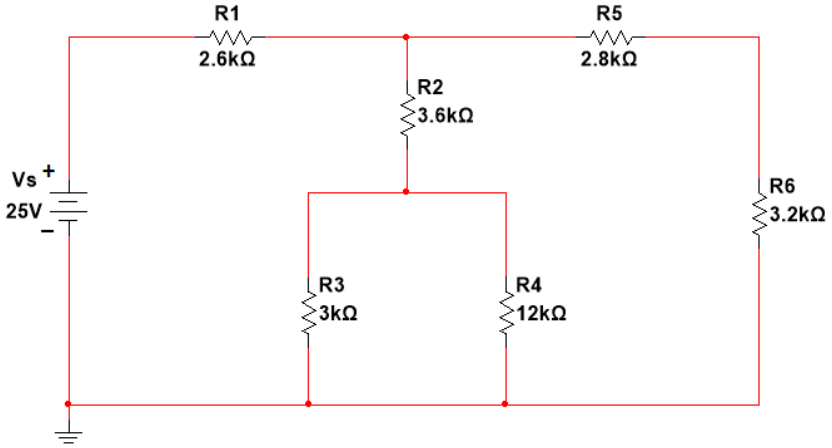
d. (0.35 each pts) The current through each resistor

I_1_____ I_2_____

I_3_____ I_4_____

Question 6

For the following series-parallel circuit, find



a. Sketch three equivalent circuit (0.9 pts ➔ 0.3 pts each)

b. Total resistance, R_T (1 pts)_____

c. (0.6 pts) Voltage in R_1, V_{R1} _____, current in R_1 , I_{R1} _____

d. (0.65 pts) Voltage in R_2, V_{R2} _____, current in R_2 , I_{R2} _____

e. (0.6 pts) Voltage in R_3, V_{R3} _____, current in R_3 , I_{R3} _____

f. (0.6 pts) Voltage in R_4, V_{R4} _____, current in R_4 , I_{R4} _____

g. (0.7 pts) Voltage in R_5, V_{R5} _____, current in R_5 , I_{R5} _____

h. (0.7 pts) Voltage in R_6, V_{R6} _____, current in R_6 , I_{R6} _____

---------- Homework Ends Here ----------