Student's Name:

Introduction to circuit analysis

Homework 3 – Series dc circuit

Instructions:

- You have to show all work in order to receive full credit
- All answer must be in engineering notation rounded off to the hundredth

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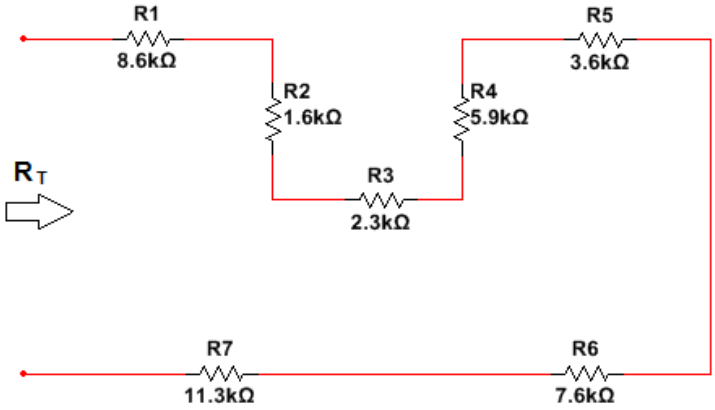
1. Find the total resistance R_T of a given circuit (8 pts)



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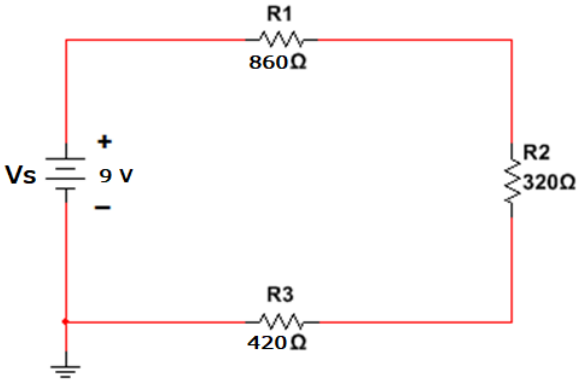
2. For the series configuration circuit



a. Find the total resistance (7 pts) _____

b. Calculate the source current (3 pts)_____

c. Find the voltage across each resistor (7 pts)

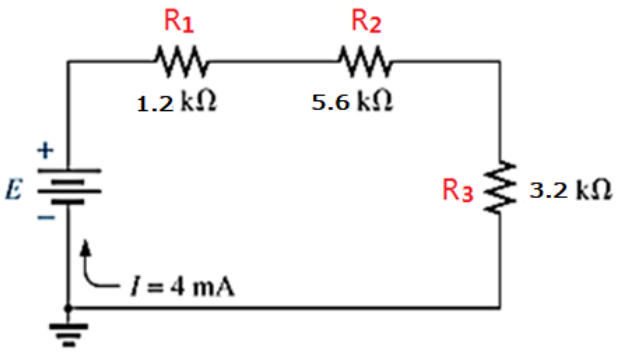
V_{R1} _____ V_{R2} _____ V_{R3}_____

d. Calculate power dissipated by the source (3 pts)_____

e. Calculate power dissipated by each resistor (7 pts):

P_{R1} _____ P_{R2} _____ P_{R3}_____

3. Find the voltage source value, E, that will result in the given current (7 pts) _____



(3 pts) Find P_{R1} _____

(3 pts) Find P_T _____

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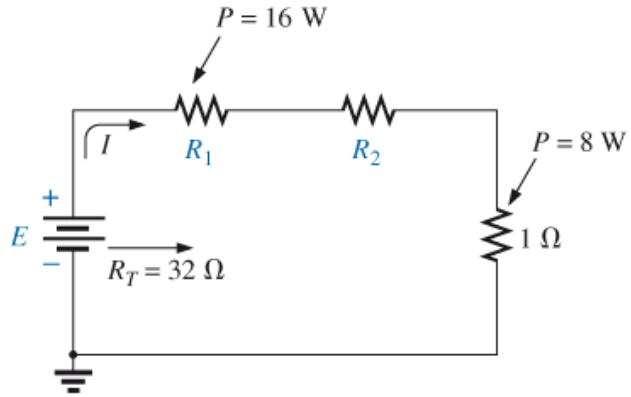
4. Using the provided information, find the unknown quantities for E, V_1, V_2, V_3, R_1, and R_2

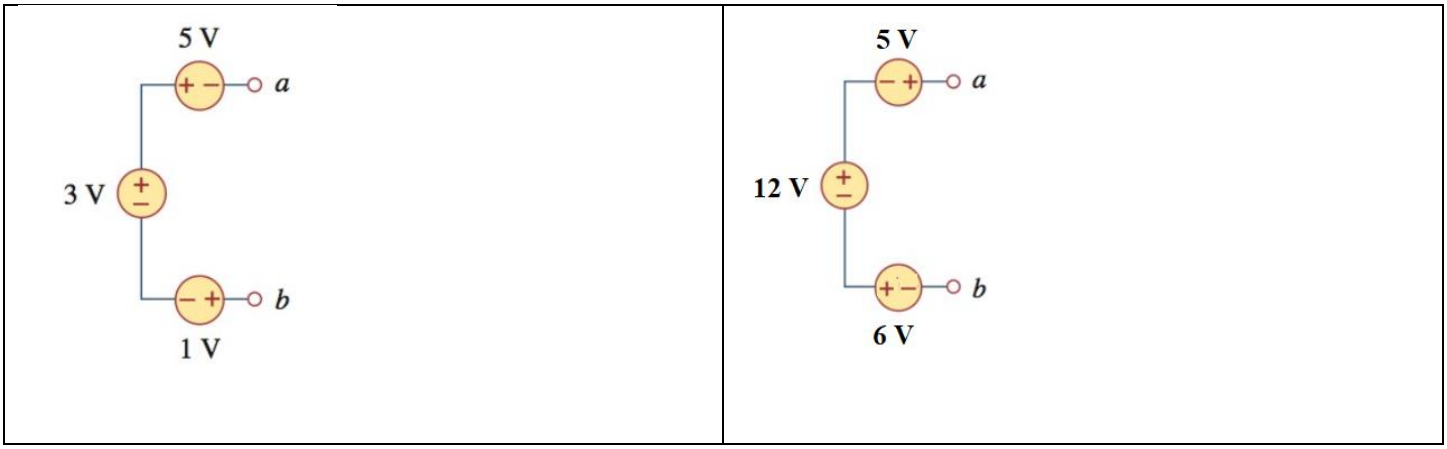


(3 pts) E _____ (3 pts) V_1 _____

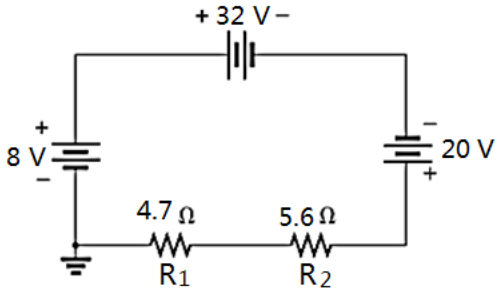
(3 pts) V_2 _____ (3 pts) V_3 _____

(4 pts) R_2 _____

5. Find the equivalent or total voltage for each of the following circuit (3 pts each):

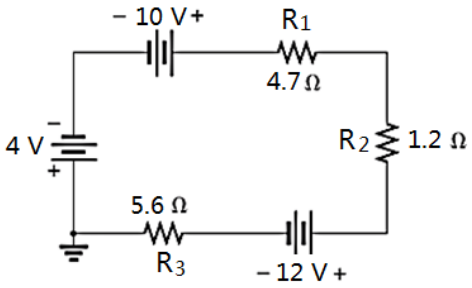


6. For the following circuits, determine the current direction and value of the circuit, and the voltage drop through each resistor with their respective voltage polarities:



$I_{equivalent}$ = _____(9 pts)(clockwise or counterclockwise)

V_{R1} _____(3 pts) V_{R2} _____(3 pts)



$I_{equivalent}$ = _____(clockwise or counterclockwise) (9 pts)

V_{R1} _____(3 pts) V_{R2} _____(3 pts) V_{R3} _____(3 pts)

----------HOMEWORK ENDS HERE ----------