Student's Name:

Introduction to circuit analysis

Homework 3 – Series 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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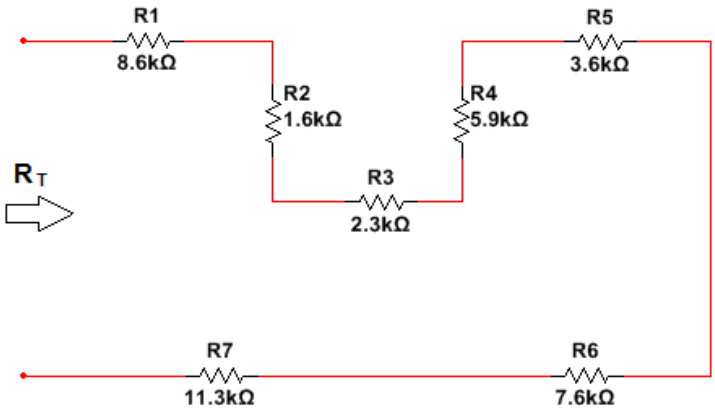
1. Find the total resistance R_T of a given circuit



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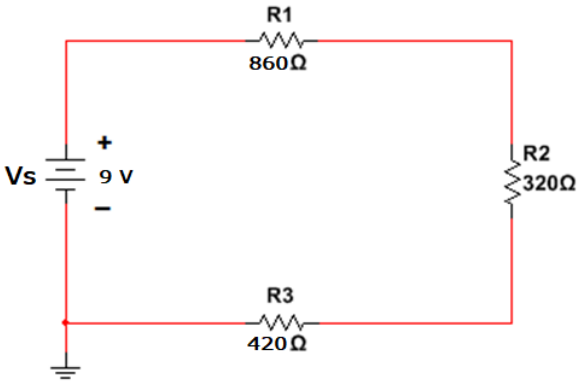
2. For the series configuration circuit



a. Find the total resistance _____

b. Calculate the source current _____

c. Find the voltage across each resistor

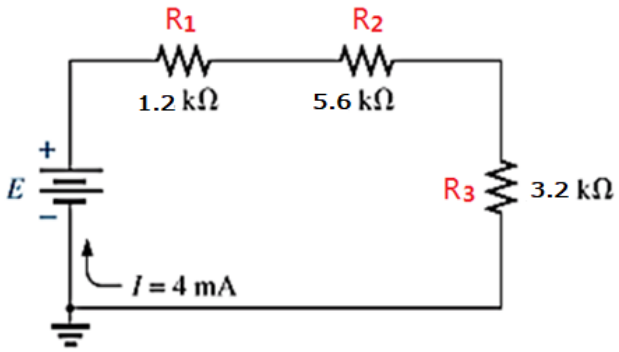
V_{R1} _____ V_{R2} _____ V_{R3}_____

d. Calculate power dissipated by the source _____

e. Calculate power dissipated by each resistor:

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

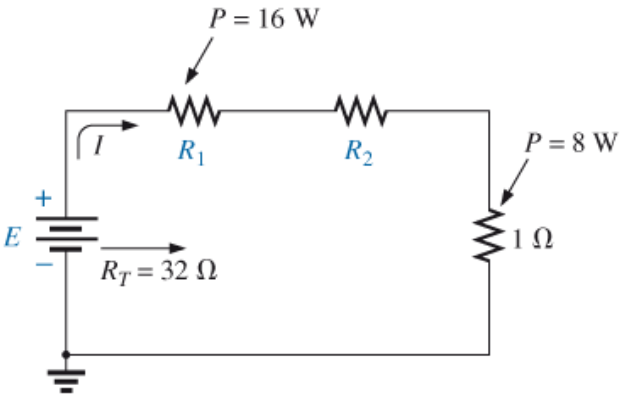
3. Find the voltage source value, E, that will result in the given current:



E _____

Find P_{R1} _____

Find P_T _____



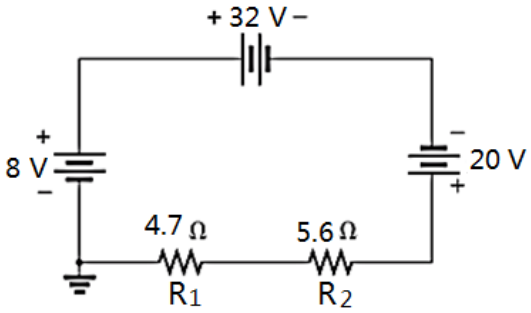
4. Using the provided information, find the unknown quantities for E, V_1, V_2, V_3, R_1, and R_2

E _____ V_1_____

V_2_____ V_3_____

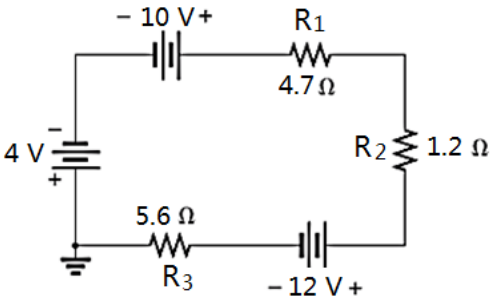
R_1 _____ R_2 _____

5. 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:



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

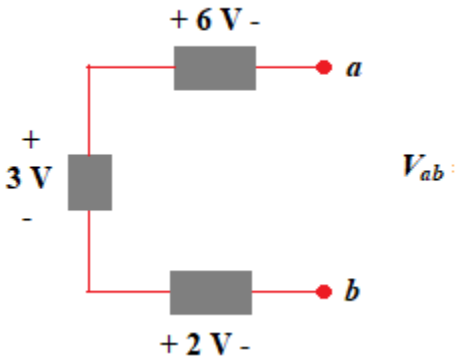
V_{R1} _____ V_{R2} _____

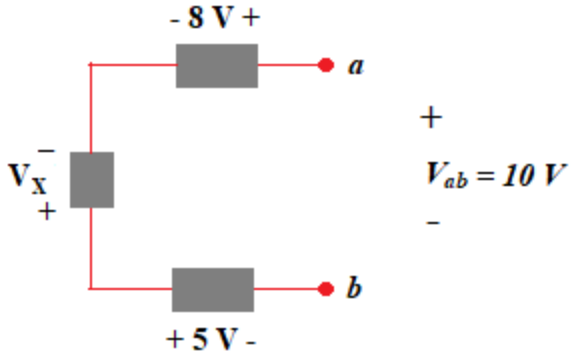


$I_{equivalent}$ = _____(clockwise or counterclockwise)

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

6. Find the unknown voltage of the given circuits:





V_{ab} = _____

V_X = _____

----------HOMEWORK 3 ENDS HERE ----------