

Student's Name: _____

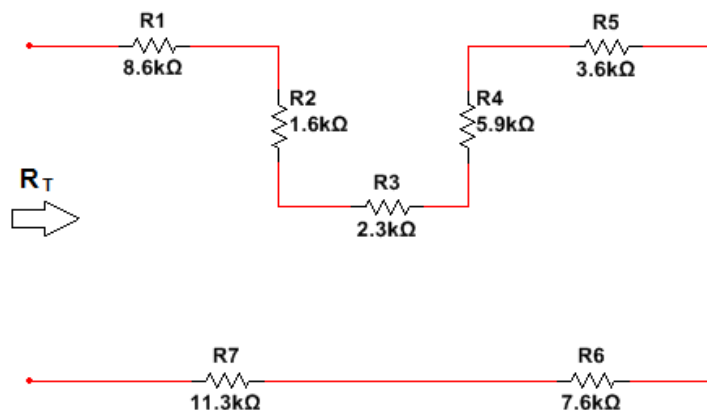
Introduction to circuit analysis

Homework 3 – Series Circuit

Instructions:

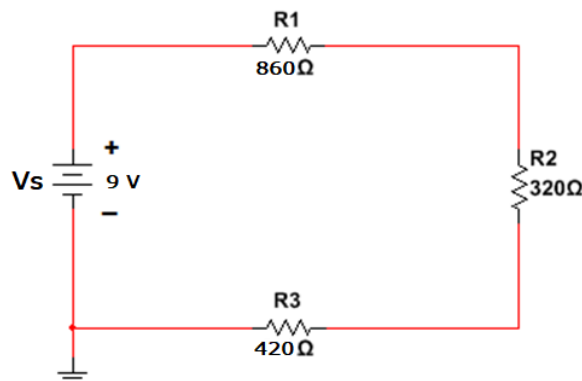
- YOU HAVE TO SHOW ALL WORK IN ORDER TO RECEIVE FULL CREDIT
- All answer must be in engineering notation rounded off to the hundredth

1. Find the total resistance R_T of a given circuit



2. For the series configuration circuit

- Find the total resistance _____
- Calculate the source current _____
- Find the voltage across each resistor
 V_{R1} _____ V_{R2} _____ V_{R3} _____
- Calculate power dissipated by the source _____
- Calculate power dissipated by each resistor:
 P_{R1} _____ P_{R2} _____ P_{R3} _____

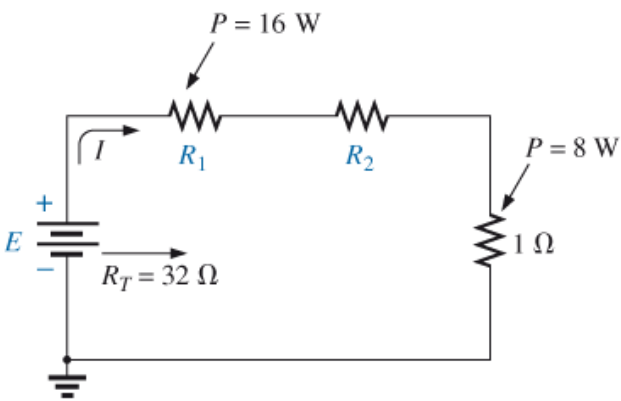
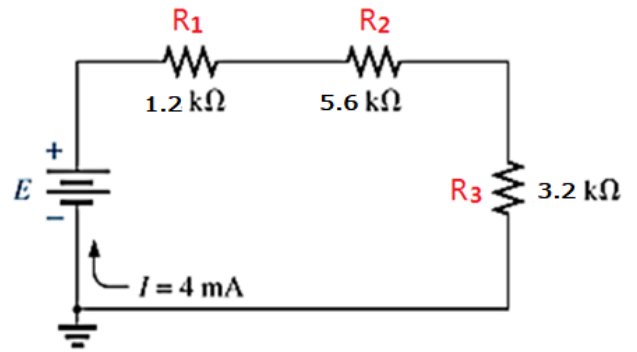


3. Find the voltage source value, E , that will result in the given current:

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 _____

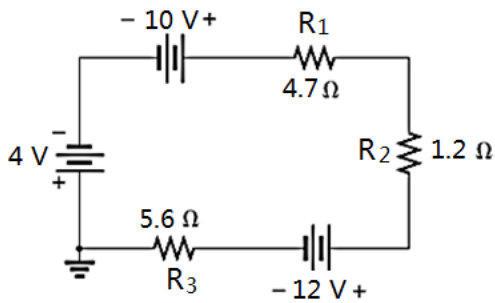
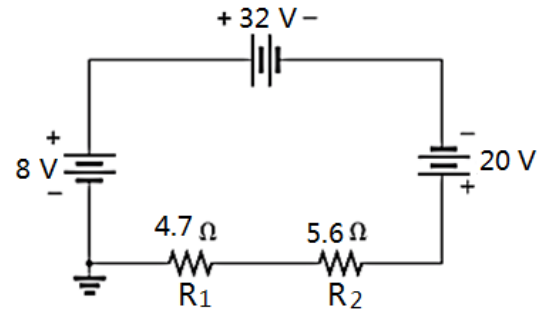
V_2 _____ V_3 _____

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:

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

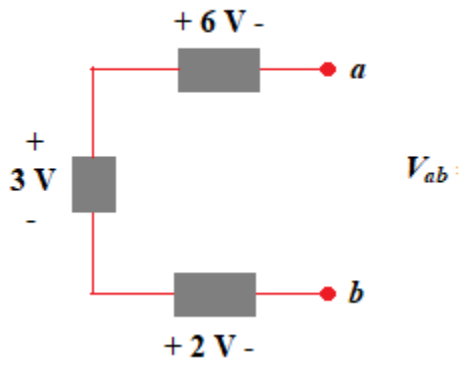
V_{R1} _____ V_{R2} _____



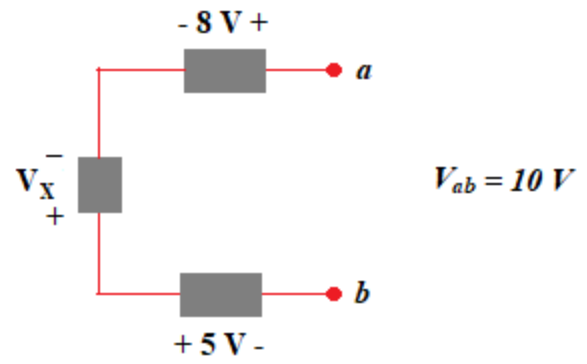
$I_{\text{equivalent}} =$ _____ (clockwise or counterclockwise)

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

6. Find the unknown voltage of the given circuits:



$V_{ab} =$ _____



$V_x =$ _____