Name _____ Regents Physics: C17/18

Series Circuit HW Problem #2

A circuit contains the following connected in series:

- A 12 V battery (1) 10 Ω resistor
- A switch (1) 8 Ω lamp (1) 16 Ω lamp

Step 1:

- Draw the circuit using the symbols from your reference tables.
- Show a voltmeter measuring the potential difference (voltage) across the resistor
- Show an ammeter measuring the current in the circuit

Step 2:

- Determine the total current in the circuit. Show all work below for credit.

- How much current is moving through only the resistor?

Step 3:

Determine the potential difference (voltage drop) across each of the following. (show all work below)

- The 10 Ω resistor

- The 8 Ω lamp

- The 16 Ω lamp

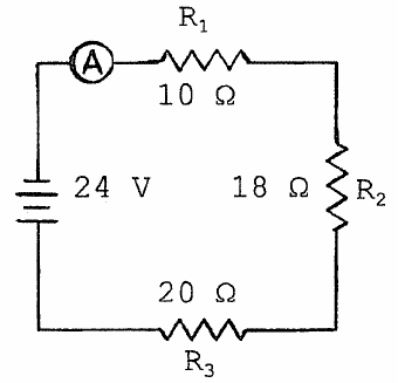
What is the total of these potential differences?

Do you think you were correct in your calculations? State YES or NO and explain you reasoning.

Part II

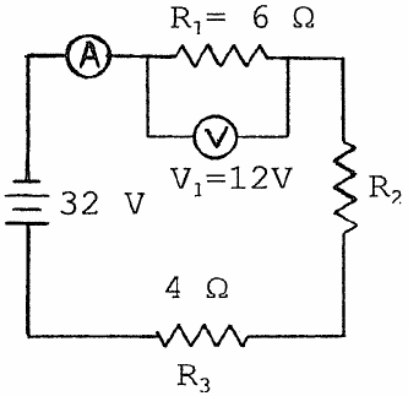
Directions: Solve for the variables listed next to each one of the series circuit schematics. SHOW ALL WORK INCLUDING EQUATION, SUBSTITUTION AND UNITS ON ALL NUMBERS.

1.



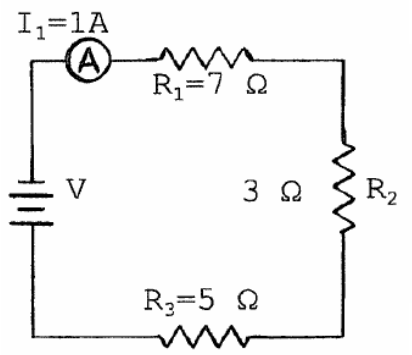
Find: R_T V_1 I_T V_3 V_2

2.



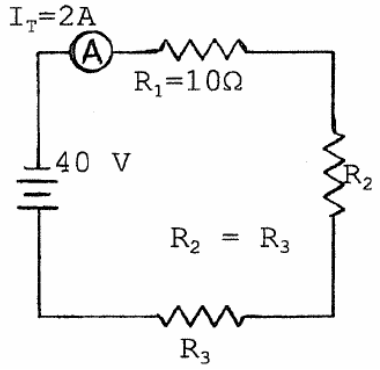
Find: I_1 R_2 I_T V_2 R_T V_3

3.



Find: V_T V_2 R_T V_3 V_1

4.



Find: R_T V_1 R_2 V_2 R_3 V_3