

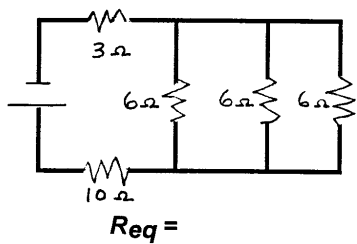
CP PHYSICS
ELECTRIC CIRCUITS REVIEW

Name: _____
_____ period

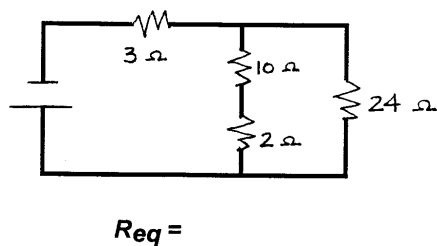
Answer the following questions on your own sheet of paper.

1. What is a series circuit?
A circuit in which there is only one pathway for current to move.
2. What is a parallel circuit?
A circuit in which there are two or more pathways for current to move.
3. If one light goes out in a series circuit, do the remaining lights go out?
yes, the circuit is essentially open so no current flows
4. If one light goes out in a parallel circuit, do the remaining lights go out?
no, the remaining lights remain on because their branches make complete circuits
5. What happens to the equivalent (total) resistance in a series circuit when you add another resistor to it?
the total resistance increases
6. What happens to the equivalent resistance in a parallel circuit when you add another resistor to it?
the total resistance decreases
7. Several resistors with different values are connected in parallel. The equivalent resistance will be less than which resistor?
it is less than any single resistor in the circuit
8. Why is household wiring done in parallel instead of in series?
because if homes were wired in series, as soon as one device stopped working or was turned off, all other devices would shut off because the circuit would be open
9. What does an ammeter measure? How is it connected into a circuit?
ammeters measure current, they are connected in series
10. What does a voltmeter measure? How is it connected into a circuit?
voltmeters measure voltage (potential difference), they are connected in parallel
11. For each part of this question, write the form of circuit that applies: series or parallel.
 - a. The current is the same throughout. series
 - b. The total resistance is equal to the sum of the individual resistors. series
 - c. The voltage drop is the same across each resistor. parallel
 - d. The voltage drop is proportional to the resistance. series
 - e. Adding a resistor decreases the total resistance. parallel
 - f. Adding a resistor increases the total resistance. series
 - g. If the current through one resistor goes to zero, there is no current in the entire circuit.
series
 - h. If the current through one resistor goes to zero, the current through all other resistors remains the same. parallel
 - i. This form is suitable for house wiring. parallel
12. If there are three lamps connected in series, how many paths can the current take?
one (series circuits have only one path for current flow)
13. If there are three lamps connected in parallel, how many paths can the current take? 3

14. Determine the equivalent resistances for the following circuits:

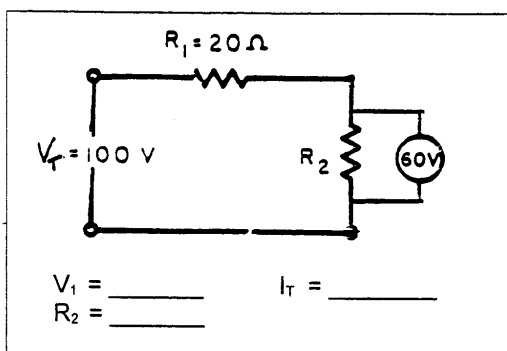


$$R_{eq} = 15\ \Omega$$



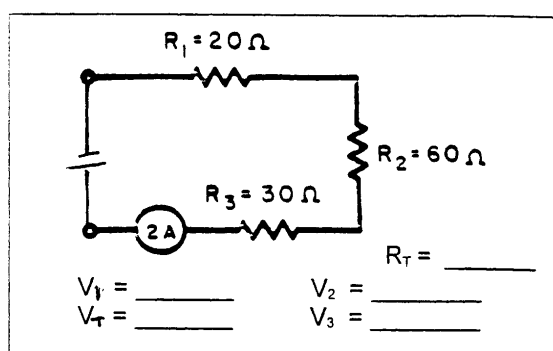
$$R_e = 11\ \Omega$$

15. Calculate the values represented in the missing blanks for the following circuit diagrams:



$$V_1 = 40\text{ V} \quad I_T = 2\text{ A}$$

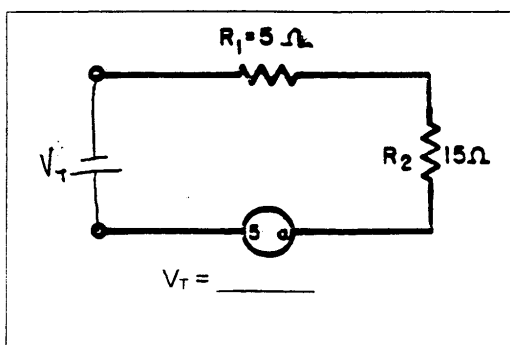
$$R_2 = 30\ \Omega$$



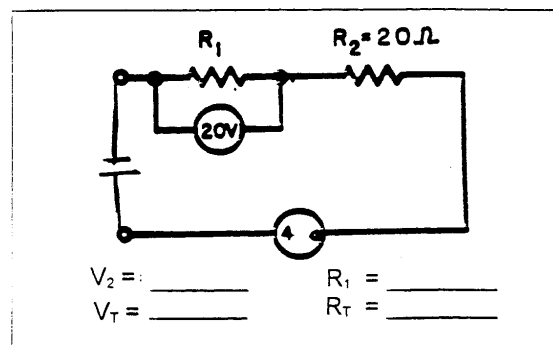
$$R_T = 110\ \Omega \quad V_1 = 40\text{ V}$$

$$V_2 = 120\text{ V} \quad V_3 = 60\text{ V}$$

$$V_T = 220\text{ V}$$

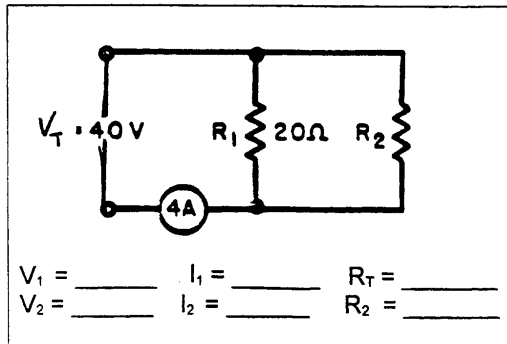


$$V_T = 100\text{ V}$$

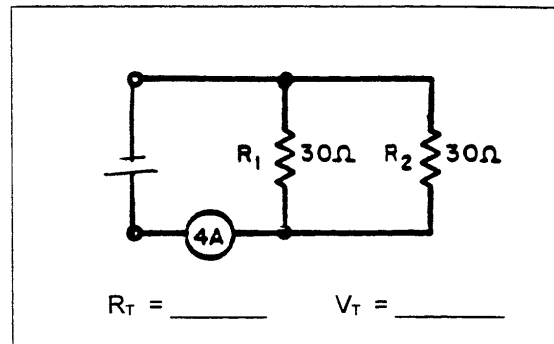


$$V_2 = 80\text{ V} \quad R_1 = 5\ \Omega$$

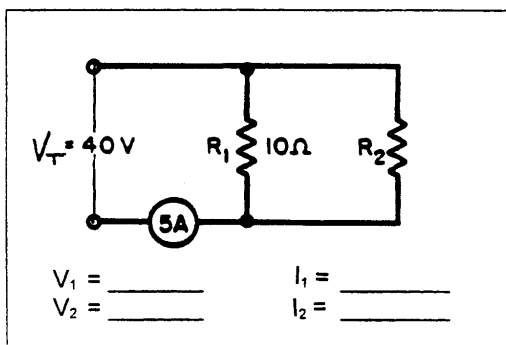
$$V_T = 100\text{ V} \quad R_T = 25\ \Omega$$



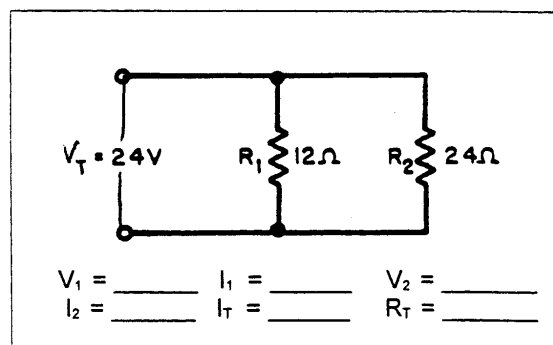
$V_1 = 40 \text{ V}$ $V_2 = 40 \text{ V}$
 $I_1 = 2 \text{ A}$ $I_2 = 2 \text{ A}$
 $R_T = 10 \text{ } \Omega$ $R_2 = 20 \text{ } \Omega$



$R_T = 15 \text{ } \Omega$ $V_T = 60 \text{ V}$



$V_1 = 40 \text{ V}$ $I_1 = 4 \text{ A}$
 $V_2 = 40 \text{ V}$ $I_2 = 1 \text{ A}$



$V_1 = 24 \text{ V}$ $V_2 = 24 \text{ V}$
 $I_1 = 2 \text{ A}$ $I_2 = 1 \text{ A}$
 $I_T = 3 \text{ A}$ $R_T = 8 \text{ } \Omega$