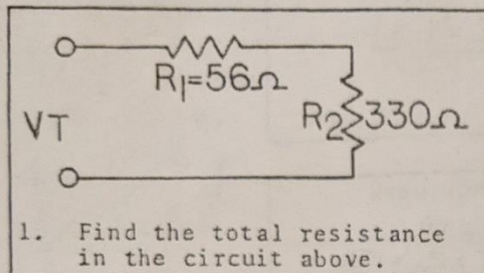


WORKSHEET

SERIES CIRCUIT ANALYSIS #1

Solve the following circuit problems. Be certain to show work, and record your answer in the answer box.



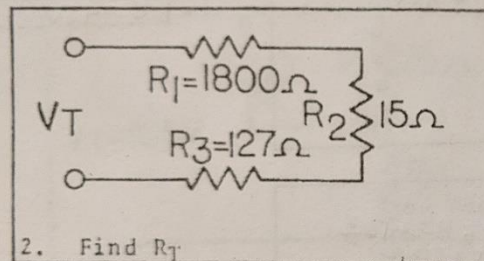
Show work

$$R_1 + R_2 = R_T$$

$$56 + 330 = R_T$$

$$386 = R_T$$

1. 386Ω



Show work

$$1800 + 15 + 127 = R_T$$

$$1815 + 127 = R_T$$

$$1942 = R_T$$

2. 1942Ω

3A. Draw a series circuit which contains the following resistors - 100Ω , $47k\Omega$, $3.3k\Omega$, and 56Ω .

Show work

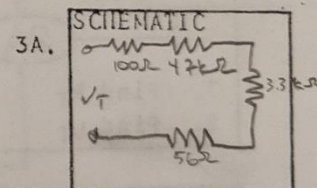
$$47000$$

$$3300$$

$$100$$

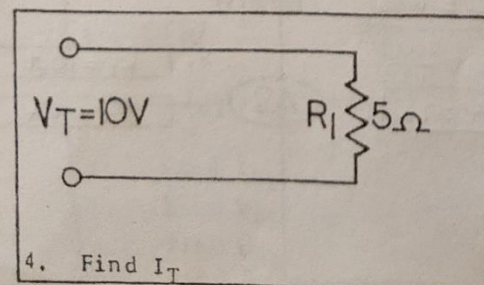
$$56$$

$$50.456k\Omega$$



3B. Find the total resistance of the circuit.

3B. $50.456k\Omega$



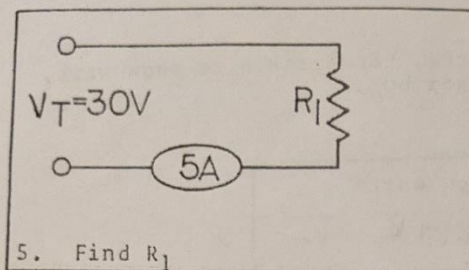
Show work

$$I = \frac{E}{R}$$

$$I = \frac{10V}{5\Omega}$$

$$I = 2A$$

4. $I = 2A$



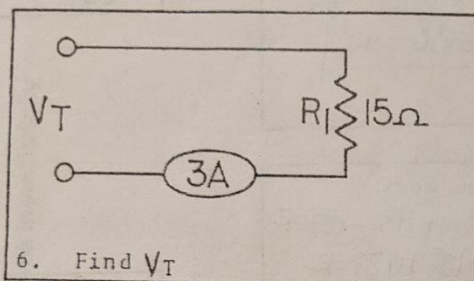
Show work

$$R = \frac{V}{I}$$

$$R = \frac{30V}{5A}$$

$$R = 6\Omega$$

5. $R = 6\Omega$



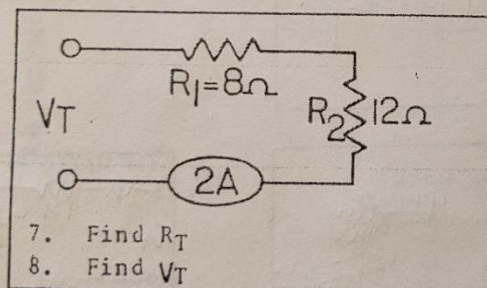
Show work

$$E = IR$$

$$E = 3A \times 15\Omega$$

$$E = 45V$$

6. $E = 45V$



Show work

$$R_T = 8\Omega + 12\Omega$$

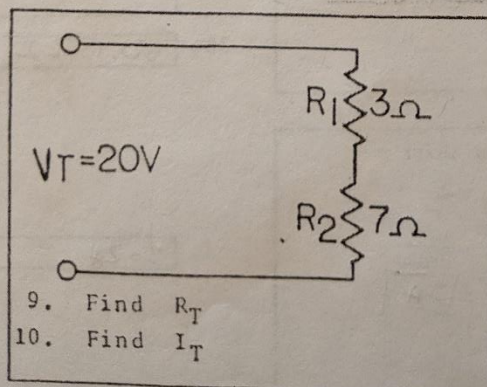
$$R_T = 20\Omega$$

$$V_T = 2A \times 20\Omega$$

$$V_T = 40V$$

7. $R_T = 20\Omega$

8. $V_T = 40V$



Show work

$$R_T = 3\Omega + 7\Omega$$

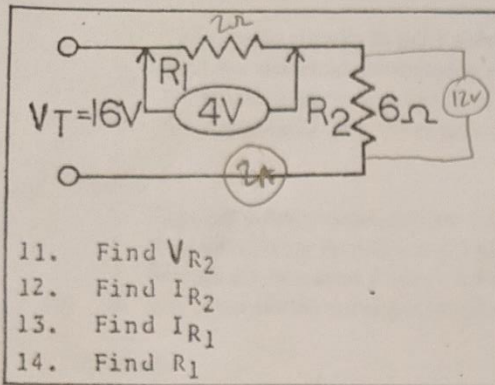
$$R_T = 10\Omega$$

$$I_T = \frac{20V}{10\Omega}$$

$$I_T = 2A$$

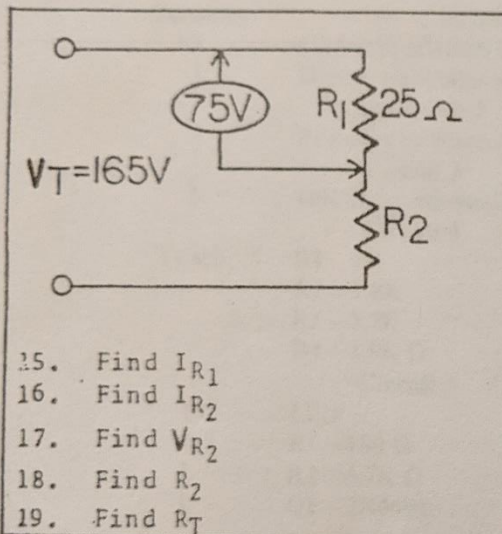
9. $R_T = 10\Omega$

10. $I_T = 2A$



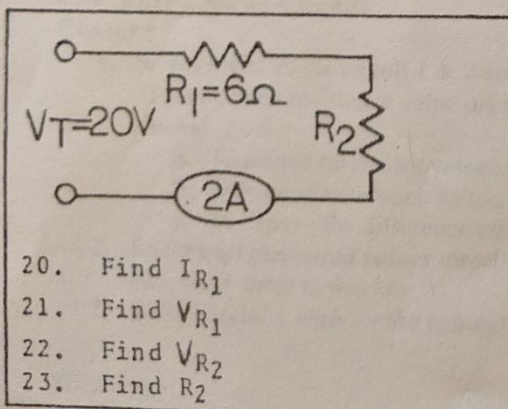
Show work
 $V_{R2} = V_T - V_{R1}$
 $V_{R2} = 16V - 4V$
 $V_{R2} = 12V$
 $I_{R2} = \frac{12V}{6\Omega} = 2A$
 $I_{R1} = 2A$
 $R1 = \frac{4V}{2A} = 2\Omega$

11. $V_{R2} = 12V$
 12. $I_{R2} = 2A$
 13. $I_{R1} = 2A$
 14. $R1 = 2\Omega$



Show work
 $I_{R1} = \frac{75V}{25\Omega} = 3A$
 $I_{R2} = 3A$
 $V_{R2} = 165V - 75V$
 $V_{R2} = 90V$
 $R2 = \frac{90V}{3A} = 30\Omega$
 $R_T = 30\Omega + 25\Omega$

15. $I_{R1} = 3A$
 16. $I_{R2} = 3A$
 17. $V_{R2} = 90V$
 18. $R2 = 30\Omega$
 19. $R_T = 55\Omega$



Show work
 $I_{R1} = 2A$
 $V_{R1} = 2A \times 6\Omega = 12V$
 $V_{R2} = 20V - 12V = 8V$
 $R2 = \frac{8V}{2A} = 4\Omega$

20. $I_{R1} = 2A$
 21. $V_{R1} = 12V$
 22. $V_{R2} = 8V$
 23. $R2 = 4\Omega$