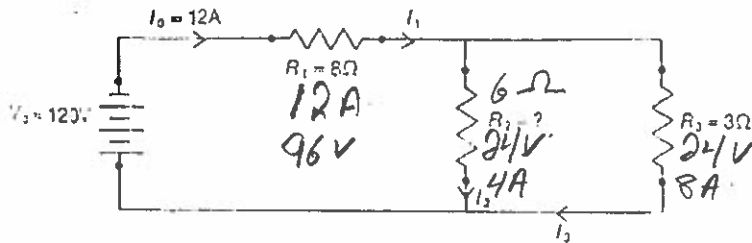


Complex Circuits Worksheet

Find: V_1, V_2, V_3
 I_1, I_2, I_3
 R_2



$$R1 \quad V = 8 \Omega \times 12 A = 96 V$$

$$R3 \quad V_3 = 120 - 96 = 24 V$$

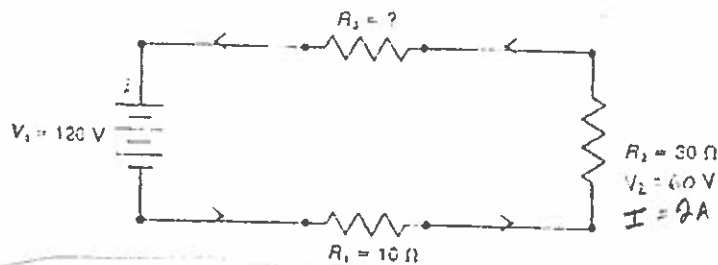
$$I_3 = V/R = 24/3 = 8 A$$

$$R2 \quad V_2 = V_3 = 24 V$$

$$I_2 = I_1 - I_3 = 12 - 8 = 4 A$$

$$R_2 = V/I = 24/4 = 6 \Omega$$

In this circuit, find $V_1, V_2, V_3, I_1, I_2, I_3$, and R_3 .



$$R2 \quad I_2 = V/R = 60/30 = 2 A$$

$$R1 \quad I_1 = I_2 = 2 A$$

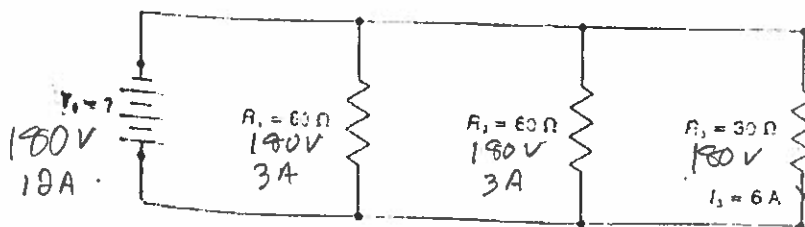
$$V_1 = I R = 2 \times 10 = 20 V$$

$$R3 \quad V_3 = 120 - 60 - 20 = 40 V$$

$$I_3 = I_1 = 2 A$$

$$R_3 = V/I = 40/2 = 20 \Omega$$

In this circuit, find $V_0, V_1, V_2, V_3, I_0, I_1$, and I_2 .



$$R3 \quad V_3 = I R = 6 \times 30 = 180 V$$

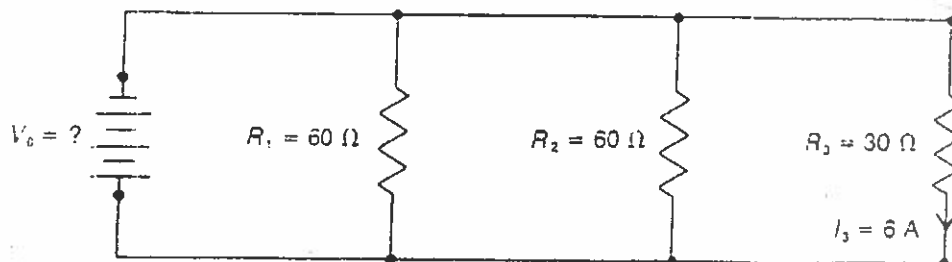
$$R1 + R2 \quad V = V_3 = 180 V$$

$$I = V/R = 180/60 = 3 A$$

4. In this circuit, find $V_0, V_1, V_2, V_3, I_0, I_1$, and I_2 .

$$BATTERY \quad I_0 = I_1 + I_2 + I_3 = 6 + 3 + 3 = 12 A$$

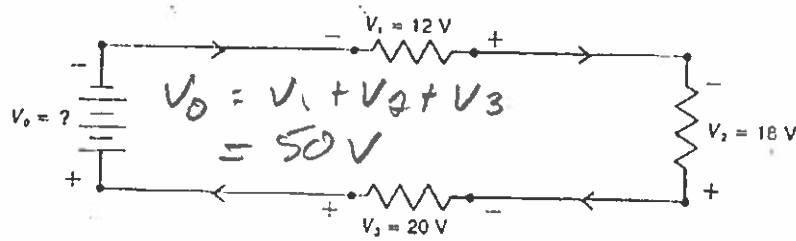
$$V_0 = V_3 = 180 V$$



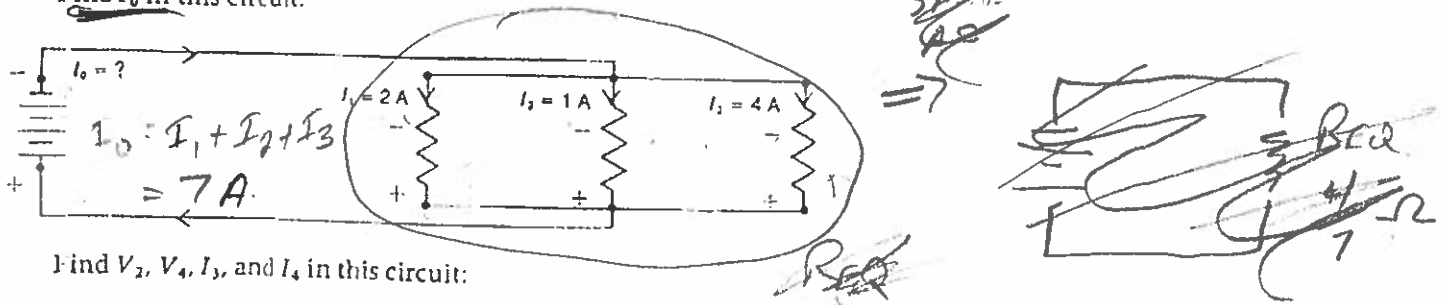
SAME AS
ABOUT!

ANSWERS

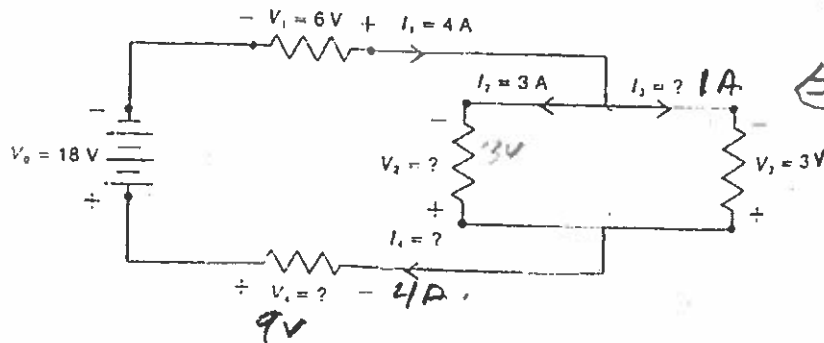
Find V_0 in this circuit:



Find I_0 in this circuit:



Find V_2 , V_4 , I_3 , and I_4 in this circuit:

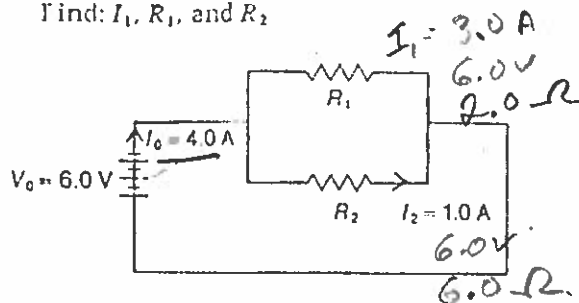


NOTE

$$I_1 = I_2 + I_3$$

$$4A = 3A + 1A$$

Find: I_1 , R_1 , and R_2



NOTE

$$I_0 = I_1 + I_2$$

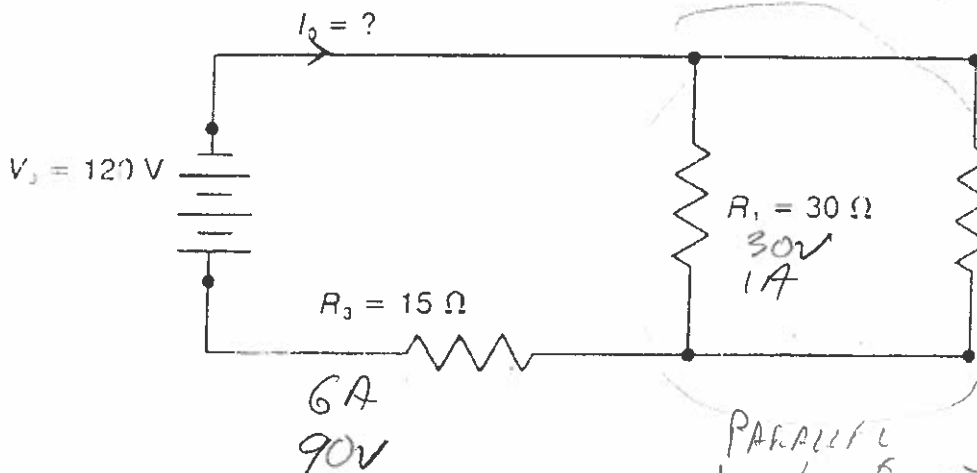
$$4.0 = 3.0 + 1.0$$

NOTE

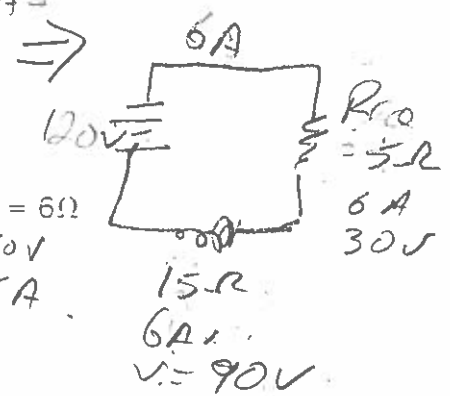
$$V_0 = V_1 = V_2$$

$$6.0 = 6.0 = 6.0$$

In this circuit, find V_1 , V_2 , V_3 , I_0 , I_1 , I_2 , and I_3 .



SAME AS



PARALLEL

$$\frac{1}{30} + \frac{1}{6} = \frac{6}{5} \Rightarrow R_{12} = 5 \Omega$$