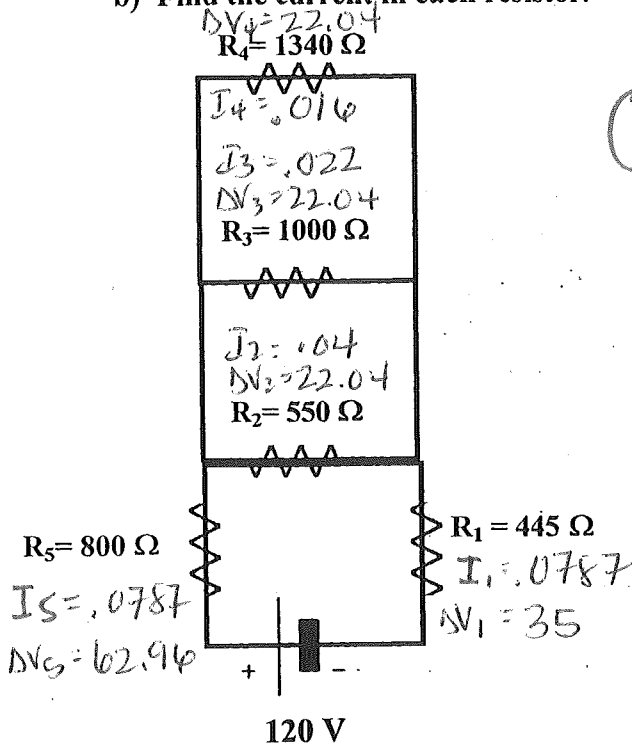


- Problem 6** a) Find the voltage drop across each resistor.
 b) Find the current in each resistor.



(a)

$$\Delta V_1 = (0.0787)(445) = 35 \text{ V}$$

$$\Delta V_5 = (0.0787)(800) = 62.96 \text{ V}$$

$$\Delta V_2 + \Delta V_1 + \Delta V_5 = 120$$

$$\Delta V_2 = 120 - 35 - 62.96 = 22.04 \text{ V}$$

$$\Delta V_2 = 22.04 \text{ V}$$

$$\Delta V_3 = 22.04 \text{ V}$$

$$\Delta V_4 = 22.04 \text{ V}$$

(1) Find R_{eq}

$$\frac{1}{R_{eq}} = \frac{1}{550} + \frac{1}{1000} + \frac{1}{1340}$$

$$R_{eq} = 280.5 \Omega + 445 + 800$$

$$R_{eq} = 1525.5 \Omega$$

(b) $I_1 = I_5 = 0.0787 \text{ A}$

$$\Delta V_2 = I_2 R_2$$

$$(22.04) = I_2 (550)$$

$$I_2 = 0.04 \text{ A}$$

$$\Delta V_3 = I_3 R_3$$

$$(22.04) = I_3 (1000)$$

$$I_3 = 0.022 \text{ A}$$

$$\Delta V_4 = I_4 R_4$$

$$(22.04) = I_4 (1340)$$

$$I_4 = 0.016 \text{ A}$$

0.0787 ✓

(2) Find total current

$$\Delta V = I R$$

$$120 = I (1525.5 \Omega)$$

$$I = 0.0787 \text{ A}$$