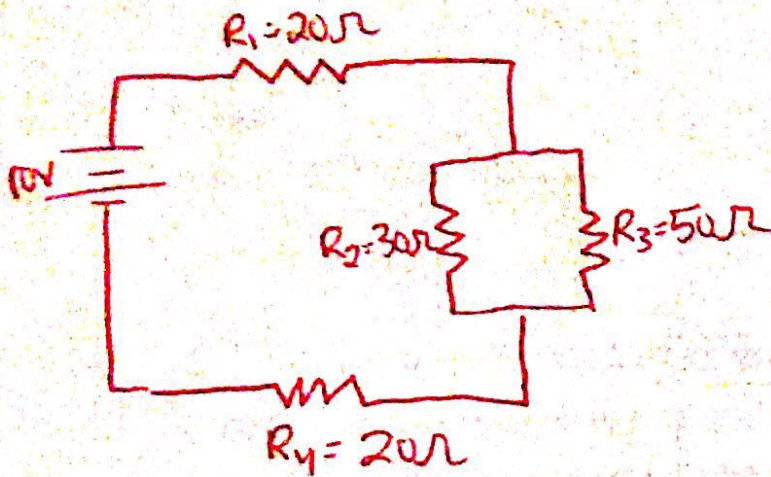


Compound Circuit Quiz



$$R_T = 60\Omega \quad I_T = 0.17A$$

$$I_1 = 0.17A \quad \Delta V_1 = 3.4V$$

$$I_2 = 0.11A \quad \Delta V_2 = 3.2V$$

$$I_3 = 0.06A \quad \Delta V_3 = 3.2V$$

$$I_4 = 0.17A \quad \Delta V_4 = 3.4V$$

Parallel Resistance

$$\frac{1}{R_T} = \frac{1}{R_2} + \frac{1}{R_3}$$

$$\frac{1}{R_T} = \frac{1}{30} + \frac{1}{50}$$

$$\frac{1}{R_T} = 0.05$$

$$R_T = \frac{1}{0.05}$$

$$R_T = 20\Omega$$

$$I_T = \frac{V_T}{R_T}$$

$$I_T = \frac{10V}{60\Omega}$$

$$I_T = 0.17A$$

$$I_T = I_1 = I_4$$

$$\Delta V_1 = I_T R_1$$

$$\Delta V_1 = 0.17A \times 20\Omega$$

$$\Delta V_1 = 3.4V$$

$$\Delta V_4 = 0.17A \times 20\Omega$$

$$\Delta V_4 = 3.4V$$

Series Resistance (Total for Circuit)

$$R_T = R_1 + (R_{\text{parallel}}) + R_4$$

$$R_T = 20\Omega + 20\Omega + 20\Omega$$

$$R_T = 60\Omega$$

Voltage drop

$$10V = 3.4 + 3.4 + x$$

$$10V = 6.8 + x$$

$$3.2 = x$$

$$I_2 = \frac{3.2V}{30\Omega}$$

$$\Delta V_2 = 0.11 \times 30\Omega$$

$$I_2 = 0.11A$$

$$\Delta V_2 = 3.2V$$

$$I_3 = \frac{3.2V}{50\Omega}$$

$$\Delta V_3 = 0.06 \times 50\Omega$$

$$I_3 = 0.06$$

$$\Delta V_3 = 3.2V$$