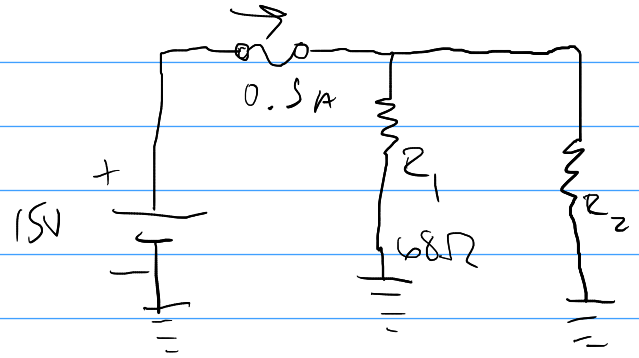


Chapter 6

$$0.5 = \frac{16}{68} + \frac{15}{R_2}$$

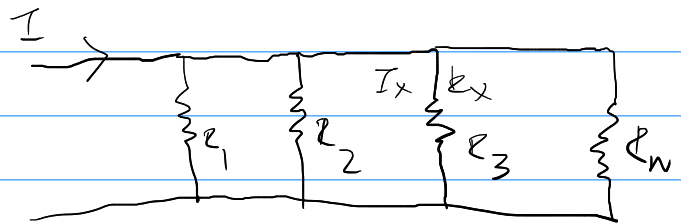
$$R_2 = 55 \Omega$$

$$I_2 = 0.27 A$$



Current Divider

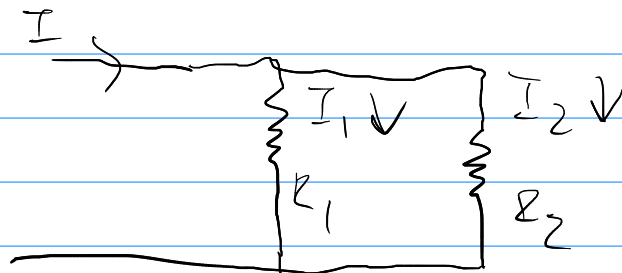
$$I_x = \frac{R_T}{R_x} I$$



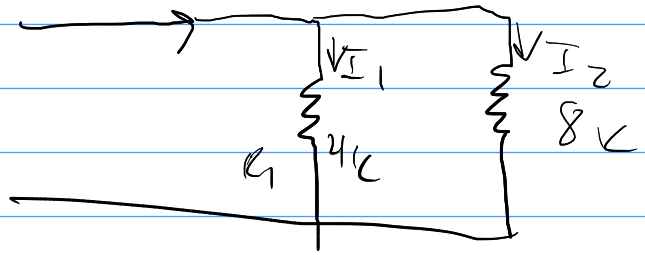
$$R_T = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \frac{1}{R_N}}$$

$$R_T < R_1 < R_2 \dots$$

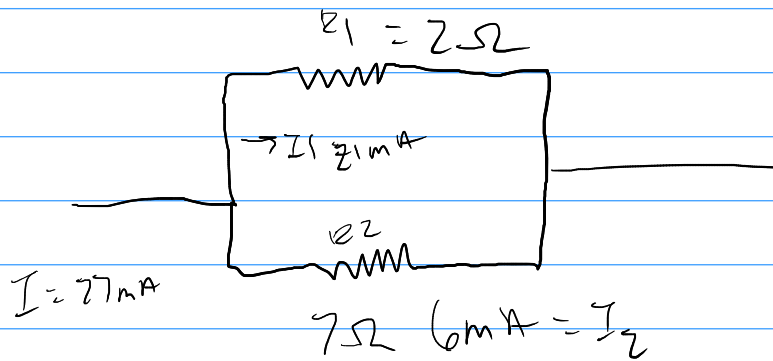
$$I_1 = \frac{R_2}{R_1 + R_2} I$$



$$I_1 = \frac{8k}{4k + 8k} 6A$$



$$I_2 = \frac{4k}{4k + 8k} 6A$$



$$V_{R1} = V_{R2}$$

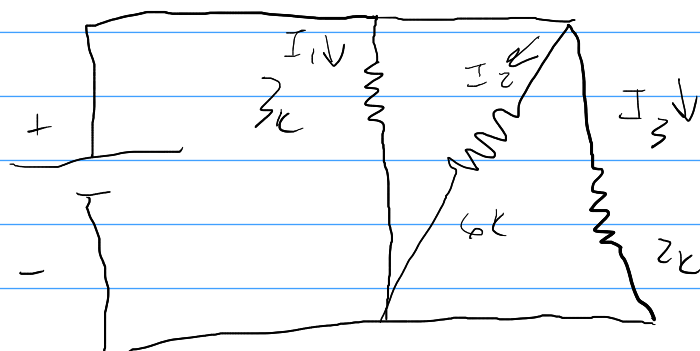
$$\frac{V}{I} = \frac{V}{I}$$

$$I = I_1 + I_2$$

$$V = 42mV = V_1 = V_2$$

find R_T , I , I_3

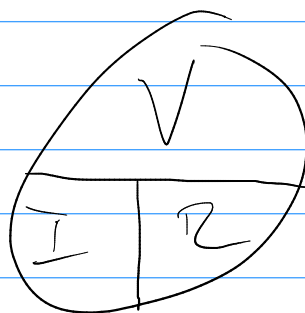
20V



$$R_T = \frac{1}{\frac{1}{3k} + \frac{1}{6k} + \frac{1}{2k}} = 1k$$

$$20mA = I$$

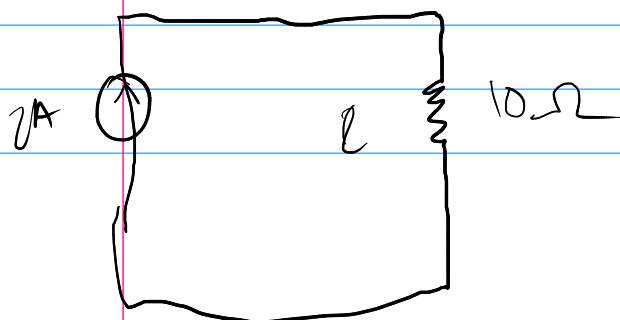
$$10mA = I_3$$



Current Source

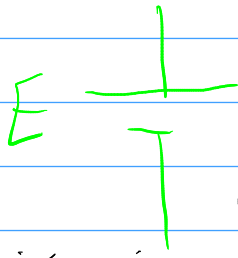


It is a source of energy that can provide a constant current to any load



$$2 \cdot 10 = 20V$$

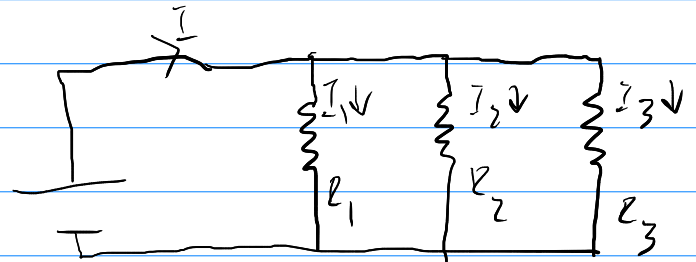
Voltage Source



Provides a constant voltage of \mathcal{E} , the current is in function of the load value

Power in Parallel circuit

$$P_{\mathcal{E}} = P_{\text{delivered}} = \mathcal{E} \cdot I \text{ W}$$



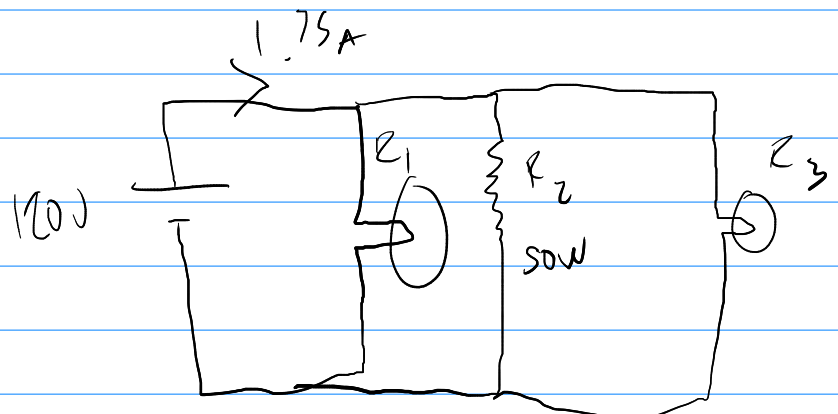
$$P_{R_1} = \frac{\mathcal{E}^2}{R_1}$$

$$P_{R_2} = \frac{\mathcal{E}^2}{R_2}$$

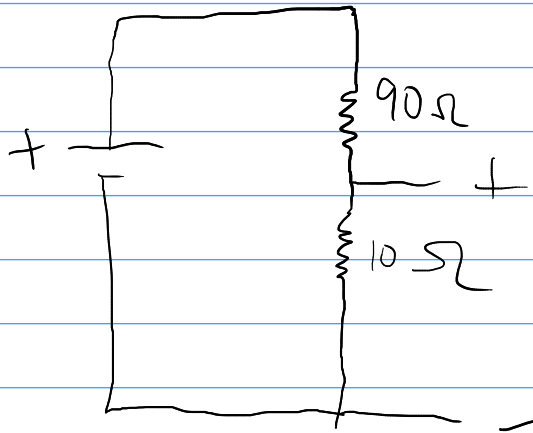
$$P_{R_3} = \frac{\mathcal{E}^2}{R_3}$$

$$P_{\mathcal{E}} = P_{R_1} + P_{R_2} + P_{R_3}$$

$$P_{\mathcal{E}} = 120 \text{ V} \cdot 1.75 \text{ A} \approx 210 \text{ W}$$



$$P_3 = P_E - P_1 - P_2 = 210\text{ W} - 100\text{ W} - 50\text{ W} \\ = 60\text{ W}$$



$$V = \frac{10}{10 + 90} (10\text{ V}) = 1\text{ V}$$