

Calcular la Resistencia equivalente y rellena el cuadro

$$V_T = 20\text{v}$$

$$R_1 = 100\text{ K}\Omega$$

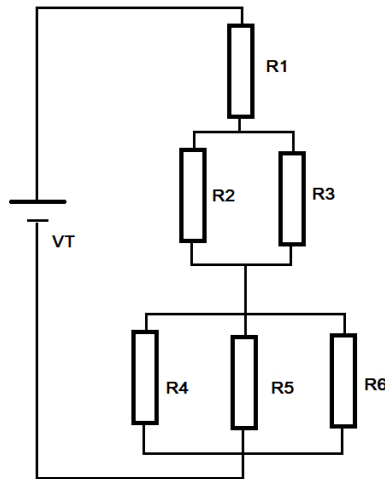
$$R_2 = 50\text{ K}\Omega$$

$$R_3 = 50\text{ K}\Omega$$

$$R_4 = 300\text{ K}\Omega$$

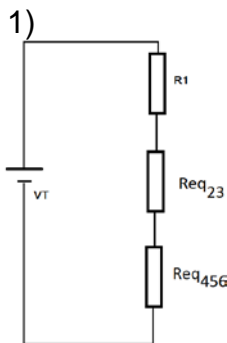
$$R_5 = 150\text{ K}\Omega$$

$$R_6 = 300\text{ K}\Omega$$



	R (Ω)	V (v)	I (μA)	W (μW)
R1	100k	10	100	1000
R2	50k	2.5	50	125
R3	50k	2.5	50	125
R4	300k	7.5	25	187.5
R5	150k	7.5	50	375
R6	300k	7.5	25	187.5

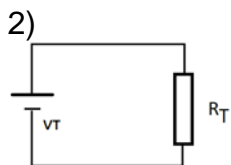
a) La asociación inicial se puede transformar en:



$$Req_{23} = \frac{R_2 * R_3}{R_2 + R_3} = \frac{50\text{K} * 50\text{K}}{50\text{K} + 50\text{K}} = \frac{2500}{100} \frac{\text{K}^2}{\text{K}} = 25\text{ K}$$

$$\frac{1}{Req_{456}} = \frac{1}{R_4} + \frac{1}{R_5} + \frac{1}{R_6} \rightarrow$$

$$Req_{456} = \frac{1}{\frac{1}{R_4} + \frac{1}{R_5} + \frac{1}{R_6}} = \frac{1}{\frac{1}{300\text{k}} + \frac{1}{150\text{k}} + \frac{1}{300\text{k}}} = 75\text{ K}$$



$$R_T = R_1 + R_2 + R_3 = 100\text{K} + 25\text{K} + 75\text{K} = 200\text{ K}$$

$$I_T = \frac{V_T}{R_T} = \frac{20\text{v}}{200\text{K}} = \frac{20}{200} \frac{\text{V}}{\text{K}} = 0.1\text{ mA} = 100\mu\text{A}$$

$$I_T = IR_1 = IReq_{23} = IReq_{456}$$

3)

$$VR_1 = R_1 * IR_1 = 100\text{ K} * 100\mu\text{A} = (100 * 100)(\text{K} \mu)\text{v} = 10\text{ 000 mv} =$$

$$VReq_{23} = Req_{23} * IReq_{23} = 25\text{ K} * 100\mu\text{A} = (25 * 100)(\text{K} \mu\text{A})\text{v} = 2.5\text{v}$$

$$VReq_{456} = Req_{456} * IReq_{456} = 75\text{ K} * 100\mu\text{A} = (75 * 100)(\text{K} * \mu\text{A})\text{v} = 7.5\text{v}$$

$$VReq_{23} = VR_2 = VR_3$$

$$IR_2 = \frac{VR_2}{R_2} = \frac{2.5\text{v}}{50\text{k}} = \frac{2.5}{50} \frac{\text{V}}{\text{K}} = 0.05\text{mA} = 50\mu\text{A}$$

$$IR_3 = \frac{VR_3}{R_3} = \frac{2.5\text{v}}{50\text{k}} = \frac{2.5}{50} \frac{\text{V}}{\text{K}} = 0.05\text{mA} = 50\mu\text{A}$$

$$IR_2 + IR_3 = 100\mu\text{A} = I_T$$

$$VReq_{456} = VR_4 = VR_5 = VR_6$$

$$IR_4 = \frac{VR_4}{R_4} = \frac{7.5v}{300k} = \frac{7.5}{300} \frac{v}{K} A = 25 \mu A$$

$$IR_5 = \frac{VR_5}{R_5} = \frac{7.5v}{150k} = \frac{7.5}{150} \frac{v}{K} A = 50 \mu A$$

$$IR_6 = \frac{VR_6}{R_6} = \frac{7.5v}{300k} = \frac{7.5}{300} \frac{v}{K} A = 25 \mu A$$

$$IR_4 + IR_5 + IR_6 = 100 \mu A = I_T$$

$$WR_1 = VR_1 * IR_1 = 10v * 100 \mu A = 1000 \mu W = 1mW$$

$$WR_2 = VR_2 * IR_2 = 2.5v * 50 \mu A = 125 \mu W$$

$$WR_3 = VR_3 * IR_3 = 2.5v * 50 \mu A = 125 \mu W$$

$$WR_4 = VR_4 * IR_4 = 7.5v * 25 \mu A = 187.5 \mu W$$

$$WR_5 = VR_5 * IR_5 = 7.5v * 50 \mu A = 375 \mu W$$

$$WR_6 = VR_6 * IR_6 = 7.5v * 25 \mu A = 187.5 \mu W$$