ANEXOS LABORATORIO 5

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Laboratorio de Circuitos Eléctricos NRC: 8703
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ANEXOS

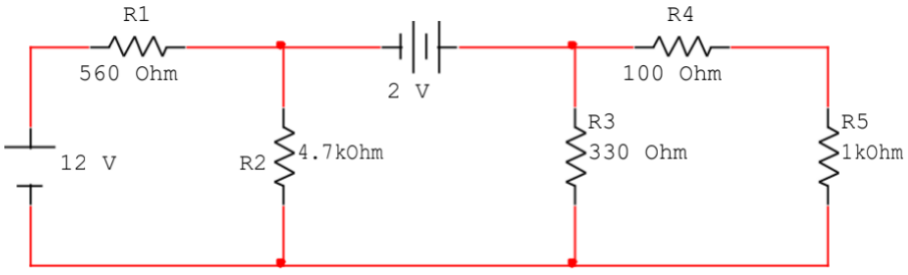

Figure 1. Circuito para comprobar el Teorema de Thévenin

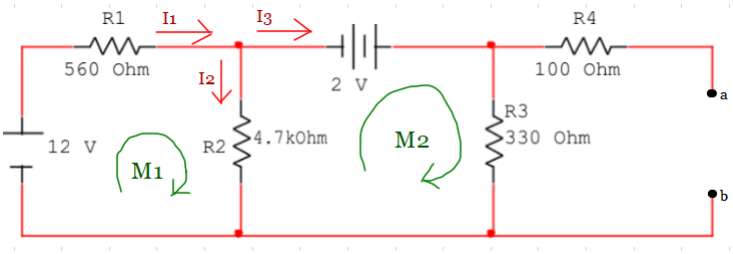

Figure 2. Primer paso, quitamos R5 y lo convertimos en una tensión en circuito abierto

A

$$I_1 - I_2 - I_3 = 0 \tag{0.1}$$

M1

$$\begin{aligned} 12V - 560I_1 - 4700I_2 &= 0 \\ 560I_1 + 4700I_2 &= 12V \\ \frac{560I_1 + 4700I_2 = 12V}{4} & \\ 140I_1 + 1175I_2 &= 3V \end{aligned} \tag{0.2}$$

M2

$$\begin{aligned} -2V - 330I_3 + 4700I_2 &= 0 \\ 4700I_2 - 330I_3 &= 2V \\ \frac{4700I_2 - 330I_3 = 2V}{2} & \\ 2350I_2 + 165I_3 &= 1V \end{aligned} \tag{0.3}$$

I_1	I_2	I_3	RTA
1	-1	-1	0
140	1175	0	3
0	2350	165	1

$$I_1 = 0,012A \tag{0.4}$$

$$I_2 = 0,0012A \tag{0.5}$$

$$I_3 = 0,011A \tag{0.6}$$

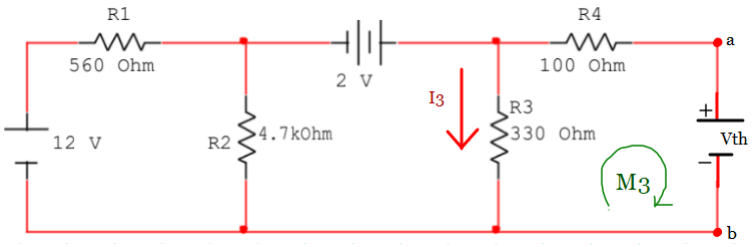

Figure 3. Calculamos el voltaje de Thévenin

$$
\begin{aligned}
-Vth + 330I_3 &= 0 \\
Vth &= 330I_3 \\
Vth &= 330(0,011) \\
Vth &= 3.63V
\end{aligned} \tag{0.7}
$$

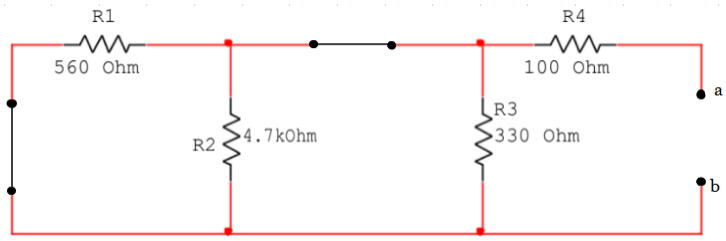

Figure 4.

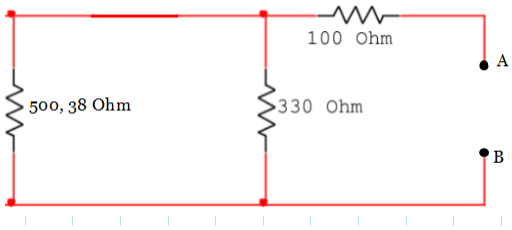

Figure 5.

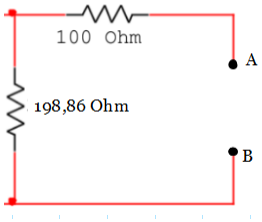

Figure 6.

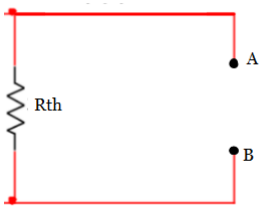

Figure 7.

(0.8)

$$Rth = 100 + 198,86$$
$$Rth = 298,86Ohm$$

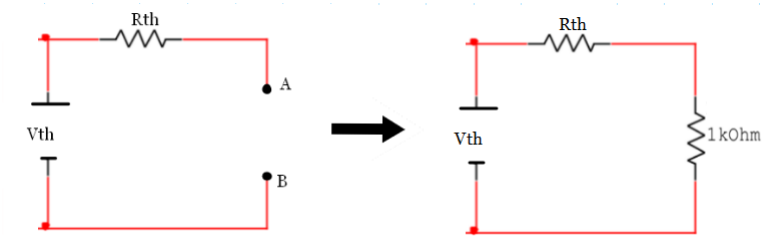

Figure 8.

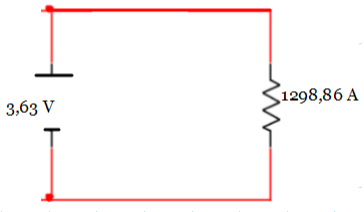

Figure 9.

$$I = \frac{V}{R}$$
$$I = \frac{3,63V}{1298,86Ohm} \tag{0.9}$$
$$I = 2,79mA$$

$$V = I \times R$$
$$V = 2,79 \times 10^{-3}A \times 1000Ohm \tag{0.10}$$
$$V = 2,79V$$