“Análisis de Nodos”

Practice 8

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Index

[Practice development 2](#_Toc10491437)

[Questionary 3](#_Toc10491438)

[What does Thevenin Theorem say? 3](#_Toc10491439)

[Why did we measure open circuit voltage and short circuit current between A and B? 3](#_Toc10491440)

[Which values from table 2 could we take to build a circuit in Norton Theorem? 3](#_Toc10491441)

[Conclusions 4](#_Toc10491442)

[Cabañas Baxcajay Jesús Francisco 4](#_Toc10491443)

[Hernández Velázquez Ángel 4](#_Toc10491444)

[Martínez Coronel Brayan Yosafat 4](#_Toc10491445)

[Calculations 5](#_Toc10491446)

[Simulations 6](#_Toc10491447)

# Practice development

Get values from the circuit of Thevenin starting of the figure 1, measure voltage between A and B and charge in RL, fill the table 1.

Imagen que contiene captura de pantalla, texto

Descripción generada automáticamente

Figure 1

Table 1

|  |  |  |
| --- | --- | --- |
| Measure | Theoretical Value | Measured Value |
| IRL | 5.04 A | 5.02 A |
| VRL | 16.63 V | 16.71 V |
| PRL | 83.82 watts | 83.88 watts |

Turn off voltage fonts, build the circuit and measure.

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Figure 2

Table 2

|  |  |  |
| --- | --- | --- |
| Measure | Theoretical Value | Measured Value |
| IRL | 0.021 A | 21.37 mA |
| VRL | 21.868 V | 22.04 V |
| PRL | 0.459 watts | 0.471 watts |

Now build a Thevenin circuit as showed in figure 3 and get values required in table 3.

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Descripción generada automáticamente

Figure 3

Table 3

|  |  |  |
| --- | --- | --- |
| Measure | Theoretical Value | Measured Value |
| IRL | 5.038 A | 5.01 A |
| VRL | 16.624 V | 16.72 V |
| PRL | 83.75 watts | 83.7672 watts |

It is very similar to table 1, that is the Thevenin Theorem.

# Questionary

## What does Thevenin Theorem say?

Any DC bilateral lineal circuit of two terminal could be replaced by a circuit with an electric / voltage font and one resistor in serial form.

## Why did we measure open circuit voltage and short circuit current between A and B?

Because Thevenin theorem uses superposition theorem, which says we need to do exactly what we did in that exercise to get the value of electric current and voltage in the equivalent circuit.

## Which values from table 2 could we take to build a circuit in Norton Theorem?

Electric current and Voltage values.

# Conclusions

## Cabañas Baxcajay Jesús Francisco

Thevenin theorem allows us to simplify circuits for their analysis, using other circuits theorems and laws, it will take us to an equivalent circuit, that will consist of a voltage supply in series with an impedance so that when connecting an element between the two terminals A and B, the voltage that falls on it and the intensity that passes through it are the same both in the real circuit and in the equivalent. This is dual to Norton theorem.

## Hernández Velázquez Ángel

With Thevenin's Theorem we verify how any circuit where you want to remove an element between a point A and B can be replaced by a resistor and a voltage source. With this we can reduce complex circuits, and in the field professional can save material and space. On the other hand, we also verify that this happens only when searching between two points where there was a resistance.

## Martínez Coronel Brayan Yosafat

Electronic is a worthy subject, we can do so many things with it. As always mathematics can predict so many things that I am worried about some people hate them, if they just give it a try, they could realize the wonders of the numbers. I know this is a practice of Thevenin Theorem, but I think this is beyond that. We need to teach each other.

# Calculations

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# Simulations

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