

# Presentation

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Universidad Industrial de Santander



I - 2015



# WELCOME

## Electrical Circuits II (27134) – B1 B2

- Theory: Wednesday 8-10 am  
Friday 8-10 am
- Lab: Tuesday 8-10 am (B1)  
Thursday 8-10 am (B2)

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# WELCOME

**Office: 204 LP – Third door on the left**

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**Questions?**

# WELCOME

**Why in english?**

**Why with moodle?**

**Who are you?**

# TOPICS

## CONTENIDOS:

### 1. Circuitos Polifásicos

- 1.1. Circuitos polifásicos
- 1.2. Circuitos trifásicos
- 1.3. Potencia en circuitos trifásicos
- 1.4. Sistemas desbalanceados

### 2. Transformada de Laplace

- 2.1. Definición
- 2.2. Propiedades
- 2.3. Modelos

### 3. Respuesta en el tiempo y en frecuencia

- 3.1. Concepto
- 3.2. Frecuencia compleja
- 3.3. Resonancia

### 4. Circuitos Acoplados Magnéticamente

- 4.1. Inductancia mutua
- 4.2. Transformadores monofásicos
- 4.3. Transformadores trifásicos

### 5. Redes generales de dos puertos

- 5.1. Concepto
- 5.2. Conexiones

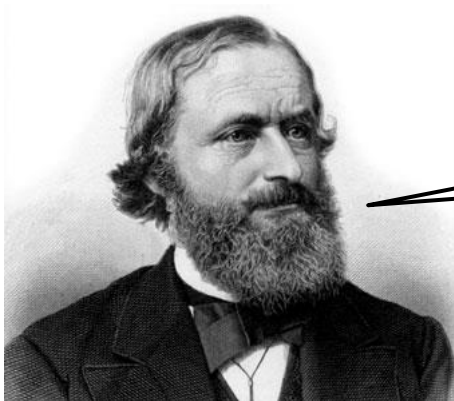


# EVALUATIONS

- Partial evaluation 1 (17 April)
  - Partial evaluation 2 (22 May)
  - Partial evaluation 3 (27 July)
- 80%
- Lab -> 15%
  - Quizzes – homeworks-> 5%
- Estimated effort : 4 hours/week + 2 hours/week (?)

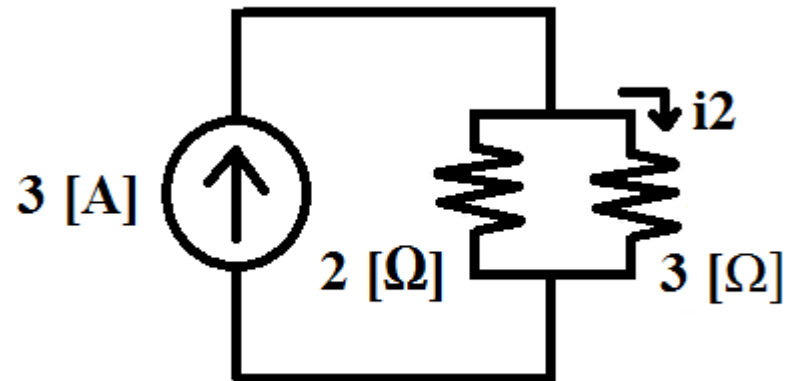
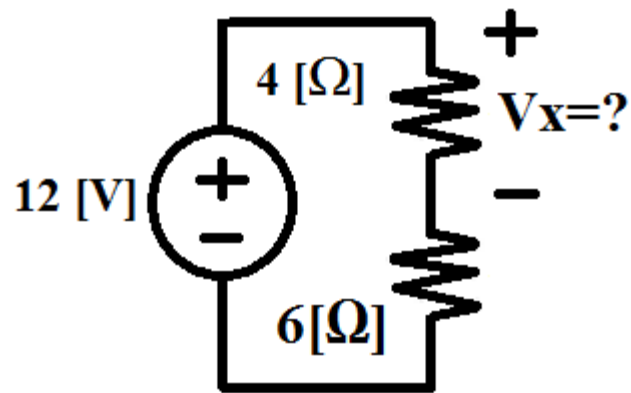
# PREREQUISITES

- Domain Kirchhoff's Laws!
- Domain Ohm's law.
- Solve multivariable linear equations
- Know how to use your calculator



Let's  
see!

# Example 1

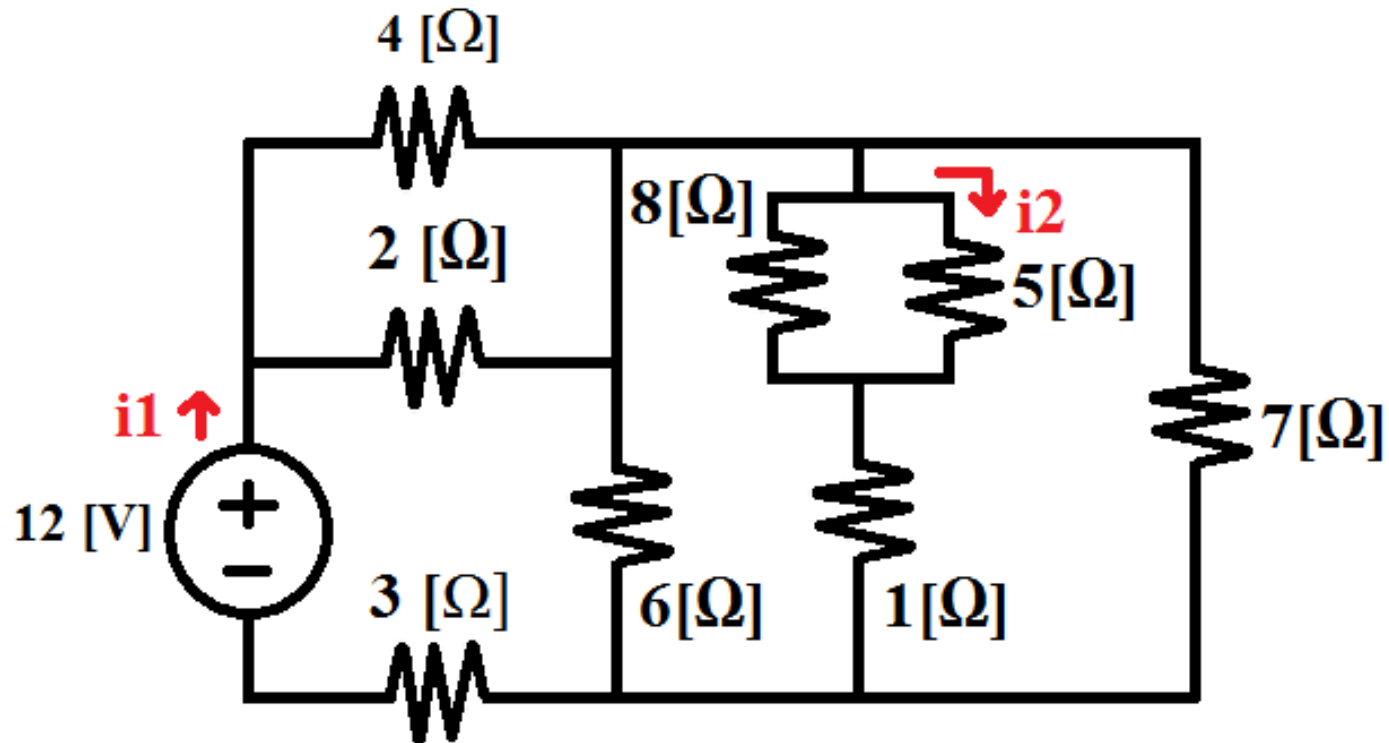


Find  $V_X$   
and  $I_2$





# Example 2



Find  $I_1$   
and  $I_2$

# Example 3

$$15X = \frac{1 - X^2}{\sqrt{e^X}}$$



Find X

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# Example 4

$$12 = 11V + 3W + 4X - 8Y + 11Z$$

$$17 = 12V + 32W + 19X + 6Y - Z$$

$$-4 = V - 6W + 2X + 6,7Y - 2Z$$

$$0 = 1,3V - 8W - 3,2X + 5Y + 14Z$$

$$10,2 = 5V + 2,3W + X + 6Y - 12,6Z$$



Solve the  
system!

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**Thank you for your attention**

C O N S T R U I M O S F U T U R O

